

# Drought Management Plan

*Prepared for*

Kerr Lake Regional Water System

February 2016



CH2M HILL, Inc.  
3120 Highwoods Blvd, Ste 214  
Raleigh, NC 27604

This page has been intentionally left blank.

# Contents

Section	Page
<b>Acronyms and Abbreviations.....</b>	<b>iv</b>
<b>Drought Management Plan.....</b>	<b>1</b>
1.1 Introduction .....	1
1.2 Water Shortage Response .....	1
1.2.1 Declaration of Conservation.....	1
1.2.2 Media Notification .....	2
1.3 Protection of the Source Basin.....	3
1.3.1 Target Reductions in Water Withdrawals .....	3
1.3.2 Evaluation of IBT on the Source Basin .....	3
1.4 Modifications to the Water Shortage Response Plans .....	5
<b>References.....</b>	<b>6</b>

**Appendixes**

- A KLRWS Water Shortage Response Plan
- B Customer Water Shortage Response Plans

**Tables**

- 1 Lake Level Difference for Proposed 2045 IBT for the Entire Simulation Period and During 2002 and 2007 Droughts
- 2 Reservoir Release Differences for the Entire Simulation Period and During the 2002 and 2007 Droughts
- 3 Power Generation Differences for Proposed 2045 IBT for the Entire Simulation Period and During the 2002 and 2007 Droughts

**Figure**

- 1 Contact Chain for Implementation of the KLRWS’s WSRP

# Acronyms and Abbreviations

cfs	cubic feet per second
EA	Environmental Assessment
FONSI	Finding of No Significant Impact
IBT	Interbasin Transfer
Kerr Lake	John H. Kerr Reservoir
KLRWS	Kerr Lake Regional Water System
mgd	million gallons per day
MWh	megawatt hour
NCDEQ	North Carolina Department of Environmental Quality
NCDWR	North Carolina Division of Water Resources
NC EMC	North Carolina Environmental Management Commission
NCGS	North Carolina General Statutes
SGWSA	South Granville Water and Sewer Authority
WSRP	Water Shortage Response Plan

# Drought Management Plan

On November 5, 2015, the North Carolina Environmental Management Commission (NC EMC) granted an interbasin transfer (IBT) certificate to the Kerr Lake Regional Water System (KLRWS). This drought management plan for KLRWS was prepared as a condition of the IBT certificate (NC EMC, 2015). It is meant to specify how the IBT will be managed to ensure the protection of the source river basin (Roanoke River basin) during drought conditions or other water emergencies that occur within the source river basin.

## 1.1 Introduction

The IBT certificate includes transfers from the Roanoke River basin of 10.7 million gallons per day (mgd) to the Tar River basin, 1.7 mgd to the Fishing Creek basin, and 1.8 mgd to the Neuse River basin. The KLRWS serves as a regional system with multiple wholesale customers across four counties and as such, there is an opportunity for regional cooperation in conserving potable water.

The owners of the KLRWS and primary bulk customers served by the system are the City of Henderson, the City of Oxford, and Warren County, known as the “Partners.” Ownership responsibility is 60 percent, 20 percent, and 20 percent, respectively. They also currently sell water to secondary bulk customers including Stovall, Warrenton, Norlina, Vance County, Kittrell, and Franklin County. Future sales will occur from Oxford to South Granville Water and Sewer Authority (SGWSA) for use in Creedmoor’s service area. Franklin County owns the Youngsville water system and also sells water to Bunn and Lake Royale.

## 1.2 Water Shortage Response

The IBT certificate condition requiring a Drought Management Plan focuses on the protection of the source river basin; the authority of the partners of the KLRWS to require water use reductions across each party’s service area as described in their Water Shortage Response Plans (WSRPs) will provide for reduced water withdrawals from John H. Kerr Reservoir (Kerr Lake), in the source basin, during periods of drought or other water emergencies.

The partners of the KLRWS have developed their WSRPs to be consistent with each other. The WSRP driving the declaration of a KLRWS water shortage is included in Appendix A. All other Partner and wholesale customer WSRPs are included alphabetically in Appendix B. These WSRPs are among the most stringent drought management plans within the Roanoke River basin, meeting a requirement of the second condition in the IBT certificate. Each wholesale customer’s WSRP is at least as stringent as that of the KLRWS. WSRPs for utilities across the state are available on the NC Department of Environmental Quality (NCDEQ) Division of Water Resources (DWR) website, [http://www.ncwater.org/Water\\_Supply\\_Planning/Water\\_Shortage\\_Response\\_Plans/](http://www.ncwater.org/Water_Supply_Planning/Water_Shortage_Response_Plans/).

### 1.2.1 Declaration of Conservation

A key component of the WSRP for the KLRWS is the ability to declare that water conservation measures must be enacted. In the case of the KLRWS, that ability lies with the City Manager of the City of Henderson. In accordance with Ordinance 11-04 by the City Council of the City of Henderson, three primary conservation levels are to be reported and enforced depending on drought severity. Whenever the City Manager of the City of Henderson, hereby referred to as the City Manager, finds the water level of Kerr Lake consistently at an elevation of 294 feet, he or she will begin implementation of the WSRP. Two major actions are to occur: notification of the implementation of the WSRP to each Partner and the City of Henderson’s wholesale customers and implementation and enforcement of actions prescribed in

the WSRP. In response to the report of any conservation condition, each Partner will have the responsibility to inform their respective customers of appropriate Water Shortage Response. The chain of contact is displayed in Figure 1.

The KLRWS’s WSRP includes three levels of action triggered by the water surface elevation of Kerr Lake:

- At an elevation of 294 feet, declaration of conservation and enforcement of the water conservation actions prescribed report that Voluntary Conservation conditions exist.
- If in the event that the City Manager finds water elevation levels consistently at an elevation of 289 feet, he or she will report that Mandatory Conservation conditions exist.
- Finally, if in the event that the City Manager finds that Kerr Lake water levels have dropped to or below an elevation of 284 feet, he or she will declare that a water shortage emergency exists.

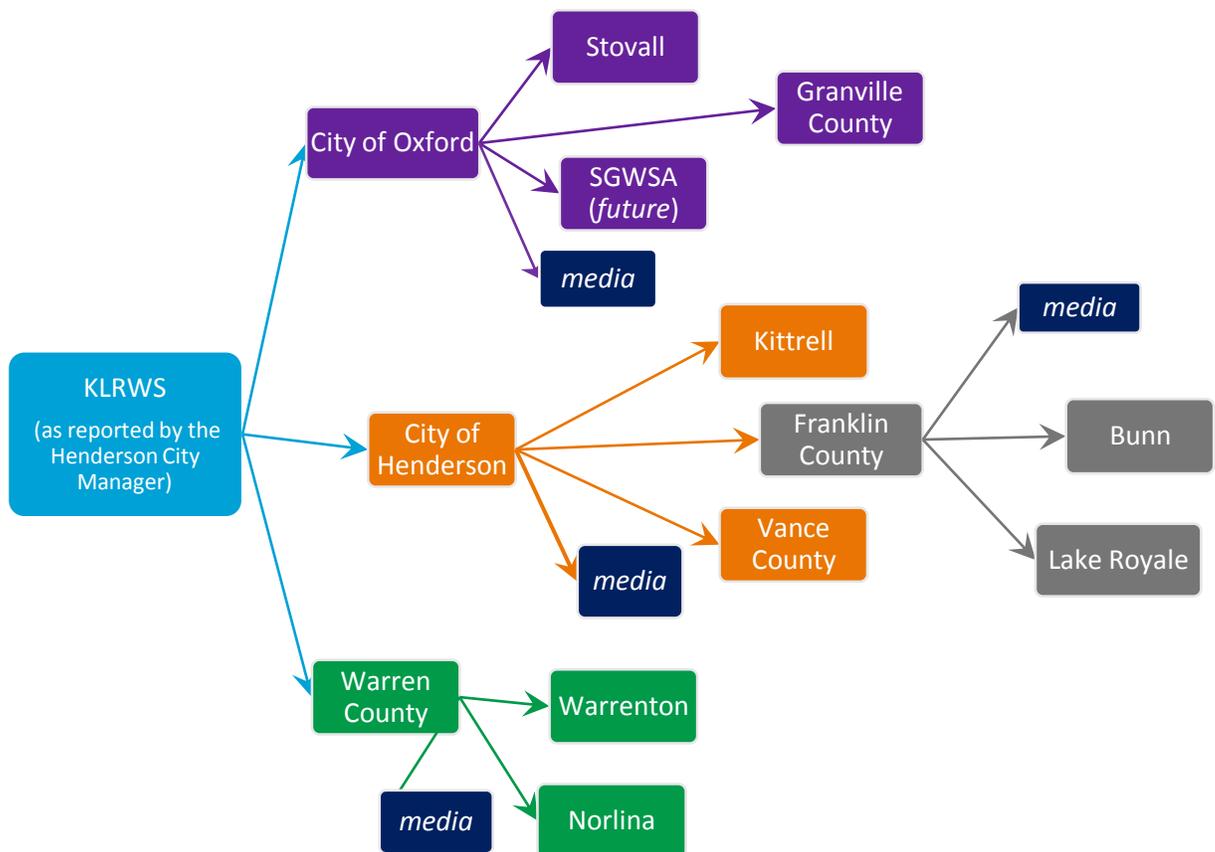


Figure 1  
Contact Chain for Implementation of the KLRWS’s WSRP

### 1.2.2 Media Notification

After the Partners have been informed by the KLRWS (via the City of Henderson’s City Manager) of the necessary conservation stage, Warren County, the City of Oxford, the City of Henderson, and Franklin County will notify their respective local media outlets. Information will be spread to the public through newspapers *The Daily Dispatch*, the *Oxford Public Ledger*, and *The Warren Record*, as well as any online news resources. In addition, each of the Partners and their customers will post water conservation

notices on their respective websites (if they have one). Local radio stations will also be notified and employees will be notified via email.

## 1.3 Protection of the Source Basin

North Carolina General Statutes (NCGS) 143-215.22L (n)(2) states that a Drought Management Plan, as a condition of an IBT certificate, should specify how the IBT will be managed to protect the source basin during drought conditions with its mandatory implementation.

1. The KLRWS's WSRPs will reduce water withdrawals and IBT from Kerr Lake during drought conditions, thereby protecting the source basin.
2. The KLRWS's level of water use reduction from Kerr Lake will increase, and IBT decrease, in direct proportion to the severity and duration of drought conditions, thereby protecting the source basin.

### 1.3.1 Target Reductions in Water Withdrawals

The KLRWS WSRP sets target goals for water use reductions using a three-stage approach to conservation:

- Voluntary conservation: 5 percent reduction in water usage to begin within 48 hours of notice to limit water use.
- Mandatory conservation: 10 percent reduction in water usage to be achieved through continued voluntary water conservation measures and the implementation of mandatory measures including the ban of all Class 3 water uses (non-essential uses as listed in the WSRP).
- Water shortage emergency: 40 percent reduction goal in water usage to be achieved through the ban of all Class 2 and 3 water uses (as listed in the WSRP).

### 1.3.2 Evaluation of IBT on the Source Basin

The *Environmental Assessment (EA) for an Interbasin Transfer from the Roanoke River Basin* and its associated Finding of No Significant Impact (FONSI) showed that the IBT certificate would have no significant impact on the source basin, as indicated by potential changes in Kerr Lake levels, lake water quality, water supply pool storage volumes, and Roanoke River flows (CH2M, 2015a). These findings are also summarized in the Hearing Officer's Report to the NC EMC (NCDEQ, 2015).

Table 1 provides a comparison of model results during the entire period of record and two periods of significant drought for the Roanoke River basin, the 2002 and 2007 droughts. These results compare the key hydrologic indicators for 2045 conditions, with and without the transfer permitted in the IBT certificate. The results presented in Table 1 are from hydrologic modeling analyses completed for the Final EA and include the modeled effect of the implementation of the KLRWS's WSRPs during drought conditions. Table 1 shows these predictions under 2002 and 2007 drought conditions as a 0.2 and 0.1 feet decrease in elevation, respectively.

Table 1

Lake Level Difference for Proposed 2045 IBT for the Entire Simulation Period and During 2002 and 2007 Droughts

Scenario Comparison	Results (feet)	Roanoke River Reservoirs		
		Kerr	Gaston	Roanoke Rapids
	Average Baseline Elevation	299.8	200.0	132.0
2045 Baseline versus 2045 IBT	AVERAGE ELEVATION DURING 2002 DROUGHT	284.8	200.0	132.0
	Average Difference with IBT during 2002 Drought	-0.2	0.0	0.0
	Average Elevation during 2007 Drought	284.6	200.0	132.0
	Average Difference with IBT during 2007 Drought	-0.1	0.0	0.0

Source: CH2M, 2015b

Each reservoir on this stretch of the Roanoke River has a minimum release regime which drives the results. Results from the model indicate that the largest impact of the IBT on the source basin will be in the form of outflow. The average difference in release from Kerr Lake is approximately 5.0 cubic feet per second (cfs), which is less than the average IBT. Table 2 demonstrates that the difference in outflow under various conditions between Kerr Lake, Lake Gaston, and Roanoke Rapids is equal. The average reduction in flow is minimal, comprising only a 0.07 percent reduction under average conditions, 0.2 percent reduction during 2002 drought conditions, and a 0.3 percent reduction under 2007 drought conditions.

Table 2

Reservoir Release Differences for the Entire Simulation Period and During the 2002 and 2007 Droughts

Scenario Comparison	Results (cfs)	Roanoke River Reservoirs		
		Kerr	Gaston	Roanoke Rapids
2045 Baseline	Average Baseline Discharge	7,443.5	7,888.8	7,491.5
2045 Baseline	Average Discharge during 2002 Drought	3,077.3	3,247.8	2,921.0
2045 IBT	Average Discharge during 2002 Drought	3,082.3	3,252.7	2,956.2
	Average Difference during 2002 Drought	5.0	4.9	5.2
2045 Baseline	Average Discharge during 2007 Drought	2,691.2	2,989.8	2,681.7
2045 IBT	Average Discharge during 2007 Drought	2,683.1	2,981.7	2,673.6
	Average Difference during 2007 Drought	-8.1	-8.1	-8.1

Source: CH2M, 2015b

Average baseline discharge has been calculated using the period of record  
 2002 Drought – 6/18/2002 through 10/15/2002  
 2007 Drought – 10/16/2007 through 3/10/2008

Hydropower is generated in the Roanoke River basin including at Kerr Lake. Table 3 shows the impacts of IBT during drought conditions on hydropower. The KLRWS's allocation from Kerr Lake, as approved by the U.S. Army Corps of Engineers, included an acknowledgement that there would be a small reduction in the power capability of Kerr Lake (CH2M, 2015b).

Table 3

Power Generation Differences for Proposed 2045 IBT for the Entire Simulation Period and During the 2002 and 2007 Droughts

Scenario Comparison	Results megawatt hour (MWh)		
	Kerr Lake	Lake Gaston	Roanoke Rapids
Average Baseline Power	471,074	342,548	348,778
2045 Baseline			
Average Power during 2002 Drought	185,668	161,193	159,085
versus			
2045 IBT			
Average Difference during 2002 Drought with IBT	-680	-346	-372
Average Power during 2007 Drought	342,152	249,559	253,131
Average Difference during 2007 Drought with IBT	-378	-156	-168

Source: CH2M, 2015b

Notes:

2002 Exceptional Drought Period – 6/18/2002 through 10/15/2002

2007 Exceptional Drought Period – 10/16/2007 through 3/10/2008

## 1.4 Modifications to the Water Shortage Response Plans

Since the WSRPs are referenced in this *Interbasin Transfer Certificate Drought Management Plan*, and the WSRPs are required to be approved by NCDWR and adopted by the KLRWS and each customer's governing bodies, any NCDWR-approved updates to the WSRPs will automatically be included in this plan.

# References

CH2M HILL, Inc. (CH2M). 2015a. Environmental Assessment for an Interbasin Transfer from the Roanoke River Basin. Prepared for Kerr Lake Regional Water System. Raleigh, North Carolina. January 2015.

CH2M HILL, Inc. (CH2M). 2015b. Interbasin Transfer Petition. Submitted to North Carolina Environmental Management Commission. Raleigh, North Carolina. March 2015.

North Carolina Department of Environmental Quality (NCDEQ). 2015. Hearing Officer's Report to the Environmental Management Commission for the KLRWS Proposed Interbasin Transfer Certificate. Raleigh, North Carolina.

North Carolina Environmental Management Commission (NC EMC). 2015. Interbasin Transfer Certificate for the Kerr Lake Regional Water System. Approved November 5, 2015. Raleigh, North Carolina. <http://www.ncwater.org/?page=294>

Appendix A  
KLRWS Water Shortage Response Plan

This page has been intentionally left blank.

## ORDINANCE 11—04

Council Member Peace-Jenkins introduced the following Ordinance which was seconded by Council Member Daye and read:

### WATER SHORTAGE RESPONSE ORDINANCE

The City Council of the City of Henderson, North Carolina doth ordain:

Section 1. That Chapter 15B of the City Code be amended to read as follows:

#### “CHAPTER 15B – WATER SHORTAGE RESPONSE ORDINANCE

**Sec. 15B-1. Purpose.**

The purpose of this chapter is to provide for the declaration of official phases of water supply shortage situations and the implementation of voluntary and mandatory water conservation measures throughout the city and for all of its water customers in the event a shortage is declared.

(Ord. of 9-24-07(1), § 1)

**Sec. 15B-2. Definitions.**

*Allotment*, as the term is used in this chapter, shall mean the maximum quantity of water allowed for each customer over any applicable period as established in the water rationing provisions of this chapter.

*Any water*, as the term is used in this chapter, shall mean any type of water, including fresh water, wastewater, or reclaimed water.

*City Manager*, as the term is used in this chapter, shall mean the City Manager of the City of Henderson, or in his absence, the Assistant City Manager (or other designee of the City Manager).

*Customer*, as the term is used in this chapter, shall mean any person using water for any purpose from the City of Henderson's water distribution system or from lines under the City's control and for which either a regular charge is made or, in this case of bulk sales, a cash charge is made at the site of delivery.

*Emergency*, as the term is used in this chapter, shall mean that water supplies are below the level necessary, to meet normal needs and that serious shortages exist in the area.

*Excess use*, as the term is used in this chapter, shall mean the usage of water by a water customer in excess of the water allotment provided under the water rationing provisions of this chapter for that customer, over and applicable period.

*Fresh water*, as the term is used in this chapter, shall mean water withdrawn from surface or groundwater that has not been previously used.

*Mandatory conservation*, as the term is used in this chapter, shall mean that raw water supplies from the Kerr Lake Regional Water System are consistently below seasonal averages, and if they continue to decline, may not be adequate to meet normal needs.

*Non-residential customer*, as the term is used in this chapter, shall mean commercial, industrial, institutional, public and all other such users, with the exception of hospitals and health care facilities.

*Rationing*, as the term is used in this chapter, shall mean procedures established to provide for the equitable distribution of critically-limited water supplies, in order to balance demand and limited available supplies, and to assure that sufficient water is available to preserve public health and safety.

*Residential customer*, as the term is used in this chapter, shall mean any customers who receive water service for a single or multi-family dwelling unit. The term residential customer does not include educational or other institutions, hotel, motel, or similar commercial establishments.

*Service interruption*, as the term is used in this chapter, shall mean the temporary suspension of water supply, or reduction of pressure below that required for adequate supply, to any customer, portion of a water supply, or entire system.

*Voluntary conservation*, as the term is used in this chapter, shall mean that conditions exist which indicate the potential for serious water supply shortages.

*Waste of water*, as the term is used in this chapter, includes, but is not limited to (1) permitting water to escape down a gutter, ditch, or other surface drain, or (2) failure to repair a controllable leak of water due to defective plumbing.

*Wastewater*, as the term is used in this chapter, shall mean water, which has been previously used for industrial, municipal, domestic, or other purpose, and has not been returned to the surface or groundwater source.

*Water*, as the term is used in this chapter, shall mean water available to the City of Henderson from the Kerr Lake Regional Water System by virtue of its water rights or contract, or any treated water introduced by the City of Henderson into its water distribution system, including water offered for sale.

*Water use classes*, as the term is used in this chapter, shall be established as follows:

**CLASS 1 ESSENTIAL WATER USES:**

*Domestic use:*

- Water necessary to sustain human life and the lives of domestic pets, and to maintain minimum standards of hygiene and sanitation.

*Health care facilities:*

- Patient care and rehabilitation, including swimming pools used for patient care and rehabilitation.

*Public use:*

- Fire hydrants
  1. Fire fighting.
  2. Certain testing and drills by the fire department if performed in the interest of public safety and if approved by the city manager.
- Flushing of sewers and hydrants: As needed to ensure public health and safety and if approved by the city manager.

**CLASS 2 SOCIALLY OR ECONOMICALLY IMPORTANT USES OF WATER:**

*All domestic uses other than those included in classes 1 and 3:*

- Home water use including kitchen, bathroom and laundry use.
- Minimal watering of vegetable gardens.
- Watering of trees where necessary to preserve them.

*Commercial, agricultural, industrial and institutional uses:*

- Outdoor commercial watering (public or private) using conservation measures and to the extent that sources of water other than fresh water are not available to use.
- Irrigation for commercial vegetable gardens and fruit orchards or the maintenance of livestock.
- Watering by commercial nurseries at a minimum level necessary to maintain stock.
- Water use by arboretums and public gardens or national, state, or regional significance where necessary to preserve specimens.
- Use of fresh water at a minimum rate necessary to implement vegetation following earth moving, where such vegetation is required by law or regulation.
- Watering of golf course greens.
- Filling and operation of swimming pools:

1. Residential pools which serve more than twenty-five (25) dwelling units.
  2. Pools used by health care facilities for patient care and rehabilitation.
  3. Municipal pools.
- Commercial car and truck washes.
  - Commercial laundromats.
  - Restaurants, clubs, and eating places.
  - Air conditioning:
    1. Refilling for start up at the beginning of the cooling season.
    2. Make-up of water during the cooling season.
    3. Refilling specifically approved by health officials and the municipal governing body, where the system has been drained for health protection or repair purposes.
  - Schools, churches, motels/hotels and similar commercial establishments.

**CLASS 3 NONESSENTIAL USES OF WATER:**

*Ornamental purposes:*

- Fountains, reflecting pools, and artificial waterfalls.

*Outdoor noncommercial watering (public or private):*

- Gardens, lawns, parks, golf courses (except greens), playing fields and other recreational areas.
- Filling and operation of recreational swimming pools which serve fewer than twenty-five (25) dwellings.
- Noncommercial washing motor vehicles.
- Serving water in restaurants, clubs, or eating places except by specific request.
- Air conditioning: refilling cooling towers after draining except as specified in class 1.

*Public use:*

- Fire hydrants: any purpose, including use of sprinkler caps and testing fire apparatus and for fire department drills, except as listed class 1.
  - Flushing of sewers and hydrants except as listed in class 1.
- (Ord. of 9-24-07(1), § 1)

**Sec. 15B-3. Declaration of voluntary conservation.**

Whenever the City Manager finds the water level in Kerr Lake is consistently at elevation 294, he shall declare that Voluntary Conservation conditions exist, and that the Director of the Kerr Lake Regional Water System shall, on a daily basis, monitor the lake level and the water use demand.

In addition, the City Manager shall call upon all water customers to employ voluntary water conservation measures within 48 hours of receiving notice (see Sec. 15B-13) to limit water use (especially Class 3 uses) and eliminate the waste of water. The goal for water reduction shall be 5%.

**Sec. 15B-4. Declaration of mandatory conservation.**

Whenever the City Manager finds the water level in Kerr Lake is consistently at elevation 289, he shall declare that Mandatory Conservation conditions exist. This implies that lake level is nearing a level where insufficient water can enter the raw water intake.

The City Manager shall continue to encourage voluntary water conservation measures for its customers as defined under the Voluntary Conservation declaration, and shall further require mandatory measures be put in place, such as a ban be imposed on all Class 3 uses for the duration of the shortage until it is declared ended by the City Manager. The goal for water reduction shall be 10%.

**Sec. 15B-5. Declaration of a water shortage emergency.**

Whenever the City Manager finds that water level in Kerr Lake has dropped to elevation 284 or below, and/or that a serious shortage exists due to other reasons, he shall declare that a water shortage Emergency exists. It would be recommended that the City identify all Class 1, Essential Uses, in specific, and make them targets for voluntary conservation initiatives.

The Kerr Lake Regional Water System shall require mandatory measures be put in place, such as a ban be imposed on all Class 2 and Class 3 uses for the duration of the shortage. The goal for water reduction shall be 40%. These restrictions should be continued until the emergency is declared ended.

In adopting such restrictions, the City Manager may take into consideration the following priorities of its obligations:

- (1) To public health and fire protection;
  - (2) To those water users residing within the city limits of the city;
  - (3) To those to whom the city has contracted obligations for supplying water; and
  - (4) To other users located outside the city limits of the City of Henderson.
- (Ord. of 9-24-07(1), § 1)

**Sec. 15B-6. Declaration of mandatory rationing.**

Whenever the City Manager finds that water level in Kerr Lake has dropped to elevation 280, declared a Water Shortage Emergency, and finds a need to provide for the equitable distribution of critically-limited water supplies, in order to balance demand on limited available supplies, and to assure that sufficient water is available to preserve public health and safety, he shall call for mandatory rationing by its water users until the emergency is declared ended.

During this emergency situation, the amount of water could be reduced by fifty percent (50%) or more. This amount shall be determined by the City Council of the City of Henderson.

**Sec. 15B-7. Objectives of mandatory rationing.**

An ordinance that provides for mandatory rationing shall state findings that:

- (1) It is imperative that water customers achieve an immediate further reduction in water use in order to extend existing water supplies and at the same time, assure that sufficient water is available to preserve the public health and sanitation and to provide fire protection service.
  - (2) The immediate further reduction in water usage is another step along a continuum of responses to the present water supply shortage. Should shortage continue further reductions in usage may be required. It must be emphasized that the additional usage reduction in the rationed area is a valid and attainable goal reflective of the conditions that currently exist.
  - (3) It is imperative that water customers achieve an immediate further reduction in water use in order to extend existing water supplies and at the same time, assure that sufficient water is available to preserve the public health and sanitation and to provide fire protection service.
  - (4) The plan provides for equitable reductions in water usage and for equal sacrifice on the part of each type of water customer. The success of this chapter depends on the cooperation of all water customers in the emergency area.
- (Ord. of 9-24-07(1), § 1)

**Sec. 15B-8. Mandatory rationing for residential users.**

(a) Unless the city council otherwise provides, mandatory rationing shall include the following for metered residential water customers.

- (1) The number of permanent residents in each dwelling unit (household) will determine the amount of water that each household will be allowed.
- (2) Each dwelling unit (household) shall be allotted one hundred thirty (130) gallons per day for each resident of the household.
- (3) Residential water customers are required to provide city and utility personnel with reasonable access to read meters as necessary to this rationing declaration. Where access is not readily available, all reasonable efforts to contact customers in order to arrange for access to read meters shall be made. In the even a water customer does not allow entry to

read the meter after reasonable efforts to arrange for such access, the dwelling unit (household) allotment will be reduced to one hundred (100) gallons per day.

(4) a. If it is found that the residential water allotment provided under this chapter would create an extraordinary hardship for individual customers, as in the case of special health-related requirements, a revised allotment or variance for the particular customer may be established;

b. Any person aggrieved by a decision relating to such an exemption or variance may file an appeal with the city manager (or clerk) in accordance with the city's normal administrative procedures and the city manager can deny, modify, or grant any variance on such appeal.

(Ord. of 9-24-07(1), § 1)

**Sec. 15B-9. Mandatory rationing for nonresidential water users.**

(a) Nonresidential customers include commercial, industrial, public and all other such users with the exception of hospitals and health care facilities.

(b) Nonresidential water customers shall further reduce their water usage to sixty-five (65) gallons per person per day or to fifty (50) percent of use levels during last metered recording.

(c) It is the primary responsibility of each nonresidential water customer to meet the mandated water use reduction goal in whatever manner possible, including limitation of operating hours or days if necessary.

(d) The city will establish a water allotment for each nonresidential water customer, based upon a required further reduction water usage from the rate of water used by the customer at the last recorded use level.

(e) Each nonresidential water user shall provide access to city's personnel for the purpose of meter reading and monitoring of compliance with this chapter. All reasonable efforts will be made to contact customers to arrange for access.

**Sec. 15B-10. Mandatory rationing for hospitals and health care facilities.**

Unless the city council otherwise provides, mandatory rationing for the hospitals and health care facilities shall include the following:

(1) Hospitals and health care facilities shall comply with all restriction imposed on residential and nonresidential water customers as may be applicable to each individual institution, to the extent compliance will not endanger the health of the patients or residents of the institution.

(2) Each hospital or health care facility shall survey its water usage patterns and requirements and implement such additional conservation measures as may be possible without endangering the health of its patients or residents to achieve a further reduction in the institution's water usage.

**Sec. 15B-11. Variances.**

The City of Henderson understands that water restrictions can cause economic hardships on certain portions of its water customers: additionally, the restriction could be infeasible for others that have implemented water use reduction strategies into their daily practices prior to drought conditions being in place.

(1) If the mandated further reduction in water usage cannot be obtained without imposing extraordinary hardship which threatens health and safety, the nonresidential customer may apply to the City Manager for a variance. For these purposes "extraordinary hardship" means a permanent damage to property or an economic loss which is substantially more severe than the sacrifices borne by other water users subject to this water rationing ordinance. If the further reduction would cause an extraordinary

hardship or threaten health or safety, a variance may be granted by the city manager, and a revised water use reduction requirement for the particular customer may be established.

(2) Applications for water use variance requests are available from the City Hall. All applications must be submitted in writing to City Hall for review by the City Manager or his or her designee. A decision to approve or deny individual variance requests will be determined within two weeks of submittal after careful consideration of the following criteria: impact on water demand, expected duration, alternative source options, social and economic importance, purpose (i.e. necessary use of drinking water), the prevention of structural damage, and the protection of health and safety.

(3) Decisions rendered by the City Manager may be appealed to the City Council if such appeal is made in writing and delivered to the City Manager's office within five (5) days of the City Manager's decision on the variance request.

#### **Sec. 15B-12. Notices.**

The following notification methods will be used to inform water system employees and customers of a water shortage declaration: employee e-mail announcements, notices posted at City Hall, notices in water bills. Required water shortage response measures will be communicated through *The Daily Dispatch*, PSA announcements on local radio stations and the City's website (<http://www.Hendersonnc.org/>). Declaration of emergency water restrictions or water rationing will be communicated to all customers by local media, including the City's website.

#### **Sec. 15B-13. Conservation recommendations.**

In the event of a water shortage, customers shall also be encouraged to adopt the following measures:

##### **(a) *Indoor residential use:***

##### **(1) *Conservation for voluntary conservation phases:***

- a. Use dishwashers only when they are full. Washing dishes by hand (don't let the tap run!) saves about twenty-five (25) gallons.
- b. Adjust water level on clothes washing machines, if possible. Use full load only, of not adjustable.
- c. Turn off faucets while brushing teeth, etc. saves about five (5) gallons per day.
- d. Reduce water used per flush by installing toilet tank displacement inserts. A plastic jug may often be used as an alternative. DO NOT USE BRICKS--They disintegrate when soaked and the resulting grit hinders closing of the flap valve.
- e. Do not use the toilet as a trash can.
- f. Use sink and tub stoppers to avoid wasting water.
- g. Keep a bottle of chilled water in the refrigerator for drinking.
- h. Find and fix leaks in faucets and water using appliances. Faucets can usually be fixed cheaply and quickly by replacing washers.
- i. Learn to read your water meter so you can judge how much water you use and what difference conservation makes.
- j. Take shorter showers and shallow baths. Saves about twenty-five (25) gallons.
- k. Reduce the number of toilet flushes per day. Each flush uses about five (5) gallons (two to three (2--3), if you have water saving toilets).

l. Don't use a garbage disposal.

m. Use non-phosphate detergent and save laundry water for lawns and plants.

(2) *Conservation for emergency conservation or rationing phase (In addition to measures listed above).*

a. Turn off shower while soaping up.

b. Use disposable eating utensils.

(b) *Outdoor residential use.*

(1) *Conservation for normal conditions and voluntary conservation phase:*

a. Lawns:

1. Water before 10:00 a.m. to prevent evaporation that occurs during the hottest part of the day. Morning is better than evening, when the dampness encourages growth of fungus.

2. Water only when lawn shows signs of wilt. Grass that springs back when stepped on does not need water.

3. Water thoroughly, not frequently: long enough to soak roots. A light sprinkling evaporates quickly and encourages shallow root systems. Water slowly to avoid runoff.

4. Don't let the sprinkler run any longer than necessary. In an hour, six hundred (600) gallons can be wasted.

5. Allow maximum of one (1) inch of water per week on your lawn. To measure, place cake tins outside to collect rain and water from sprinklers.

6. Use pistol-grip nozzles on hoses to avoid waste when watering flowers and shrubs.

7. Aerate lawns by punching holes six (6) inches apart. This allows water to reach roots rather than run off surfaces.

8. Position sprinklers to water the lawn, not the pavement.

9. Avoid watering on windy days when the wind not only blows water off target, but also causes excess evaporation.

10. Keep sprinkler heads clean to prevent uneven watering.

11. Adjust hose to simulate gentle rain. Sprinklers that produce a fine mist waste water through evaporation.

12. Know how to turn off an automatic sprinkler system in case of rain.

13. Use an alarm clock or stove timer to remind you to shut off sprinklers that don't have timers.

b. Vegetables and flower gardens:

1. Water deeply, slowly and weekly. Most vegetables require moisture to a depth of six (6) to eight (8) inches.

2. Keep soil loose so water can penetrate easily.

3. Keep weeds out to reduce competition for water.

4. Put the water where you want it and avoid evaporation by using soil-soakers or slow running hoses, not sprinklers.

c. Trees and shrubs:

1. Water deeply using a soil-soaker or drip-irrigation.
2. Water only when needed. Check the depth of soil dryness by digging with a trowel.
3. Mulch to reduce evaporation. A two (2) inch to three (3) inch layer of wood chips, pine needles, grass clippings, or straw keeps the soil cool in summer.
4. Dig troughs around plants to catch and retain water.
5. Water trees growing in full sun more often than those in shade.
6. Do not use sprinklers. Apply water directly at base.
7. Do not fertilize during the summer. Fertilizing increases a plant's need for water.
8. Postpone planting until fall or spring when there is generally less need for water.
9. Install trickle-drip irrigation systems close to the roots of your plants. By dripping water slowly, the system doesn't spray water in to the air. Use soil probes for large trees.
10. Water when cloudy, at night, or even when a light rain is falling.

d. Miscellaneous.

1. Do not allow children to play with hose or sprinklers.
2. Limit car washing.
3. Be ready to catch rainfall that occurs. Place containers under drain sprouts.
4. Use leftover household water if available.
5. Consider delaying the seeding or sodding of new lawns.
6. Determine the amount of water being used outdoors by comparing water bills for summer and winter.

*(2) Conservation for mandatory conservation phase (in addition to measures listed above).*

- a. Vegetable gardens and food trees should be given minimal amounts of water on an individual basis only.
- b. Do not water lawns and inedible plants.
- c. Do not use sprinklers.

*Most outdoor watering is prohibited under emergency conservation conditions.*

*(c) Hospital and health care facility use:*

- (1) Reduce laundry usage or services by changing the linens, etc. only when necessary to preserve the health of patients or residents.
- (2) Use disposable food service items.
- (3) Eliminated, postpone, or reduce, as they may be appropriate, elective surgical procedures during the period of emergency.

(d) *Industrial use.*

- (1) Identify and repair all leaky fixtures and water-using equipment. Give special attention to equipment connected directly to waterlines, such as processing machines, steam-using machines, washing machines, water-cooled air conditioners, and furnaces.
- (2) Assure that valves and solenoids that control water flows are shut off completely when the water-using cycle is not engaged.
- (3) Adjust water-using equipment to use the minimum amount of water required to achieve its stated purpose.
- (4) Shorten rinse cycles for laundry machines as much as possible; implement lower water levels wherever possible.
- (5) For processing, cooling, and other uses, either re-use water or use water from sources that would not adversely affect public water supplies.
- (6) Advise employees, students, patients, customers, and other users not to flush toilets unnecessarily. Install toilet tank displacement inserts; place flow restrictors in showerheads and faucets; close down automatic flushes overnight.
- (7) Install automatic flushing valves to use as little water as possible or to cycle at longer intervals.
- (8) Place water-saving posters and literature where employees, students, patients, customers', etc. will have access to them.
- (9) Check meters on a frequent basis to determine consumptive patterns.
- (10) Review usage patterns to see where other savings can be made.

(Ord. of 9-24-07(1), § 1)

**Sec. 15B-14. Enforcement of water rationing.**

(a) The city manager or the water utility department will have responsibility for monitoring of compliance with the water rationing ordinance.

(b) The following provisions shall govern the implementation of temporary service interruptions:

(1) In order to effectuate compliance with this ordinance, the City is hereby authorized to plan and implement temporary service interruption to all or part of its water supply system, as may be deemed appropriate, when any/or all of the following conditions are determined to exist:

- a. The mandated reduction in system-wide water usage has been achieved; and/or
- b. The mandated reduction in system-wide water usage has been achieved, but has failed to have a significant impact in extending limited water supplies; and/or
- c. Temporary service interruptions are necessary in order to further extend limited and/or dwindling water supplies.

(2) In the event it is determined that temporary service interruptions are necessary, the city shall notify its customers through the public media (newspapers, radio, and television), at least one (1) day prior to the temporary service interruptions, that a planned, temporary service interruption is to be imposed. Such notice shall:

- a. State the day or days when the planned, temporary service interruption will occur;
- b. State the time(s) when such planned, temporary service interruptions will commence and the time(s) such interruption will cease;
- c. State whether the planned, temporary service interruptions are to be imposed on the entire system, or part thereof, and, if only part(s) of the system, which parts will experience planned, temporary service interruptions.

(3) The City should advise by a general notice addressed to customers within the areas affected by planned, temporary service interruptions how to treat any water received from the system for human consumption during the period(s) of such interruptions and for such additional time as may be necessary until full pressure is restored to the system.

(c) The provisions of the water shortage response ordinance will be enforced by City of Henderson personnel and local law enforcement. Violators may be reported on the City's phone line or by written notice to the Mayor, City Manager, or Public Utilities Department.

(d) Meter reading schedules are authorized to be altered to assure adequate monitoring of compliance with this ordinance.

(e) Any residential or nonresidential water customer who exceeds the allotments established pursuant to this water rationing will be subject to the following excess-use administrative penalties.

(1) *Excess use administrative penalties* will be collected, computed in accordance with the following schedule:  
 Each violation .....\$100.00

(f) In addition to the excess use administrative penalty, noncompliance with the water rationing provisions of this chapter will result in the following:

- (1) For the first excess use, a warning of possible discontinuation shall be issued to the customer.
- (2) For the second or subsequent excess use, service to the customer may be interrupted or shut off for a period not to exceed forty-eight (48) hours, or, if the customer provides access, a flow restrictor may be installed in the customer's service line for the duration of the emergency. The cost incurred to interrupt or shut off and reinstate service, or to install and remove a flow restrictor, shall be assessed to the water customer. Before service to an individual may be terminated under this provision, actual notice of the intent to discontinue shall be given, which shall include notice that the customer may appear at designated time and place (within twenty-four (24) hours) for an informal hearing to show why service should not be discontinued.

**Sec. 15B-15. Shortage water rates.**

Upon the declaration of a water supply shortage as provided in sections 15B-3, 15B-4 or 15B- hereof, the city council of the city shall have the power to adopt shortage water rates by ordinance designed to conserve water supplies. Such rates may provide for, but not be limited to:

- (1) Higher charges per unit for increasing usage (increasing block rates);
- (2) Uniform charges for water usage per unit of used (uniform unit rate);
- (3) Extra charges for use in excess of a specified level (excess demand surcharge); or

(4) Discounts for conserving water beyond specific levels. Nothing herein shall be construed to imply any limitations on the city's general rate adoption and/or amendment authority.

(Ord. of 9-24-07(1), § 1)

**Sec. 15B-16. Regulations.**

Any person who violated the provisions of this chapter, who fails to carry out the responsibilities imposed by this chapter, or who impedes or interferes with any action undertaken or ordered pursuant to this chapter shall be subject to the following additional consequences:

(1) If the mayor, city manager, director of public works, or other city official or officials charged with implementation and enforcement of this ordinance or a water supply shortage resolution learns of any violation of any water use restriction imposed pursuant to this ordinance, a written notice of the record shall be affixed to the property where the violation occurred and mailed to the customer and to any other person known to the city who is responsible for the violation or its correction. Said notice shall describe the violation and order that is to be corrected, cured, or abated immediately or within such specified time as the city determines is reasonable under the circumstances. If the order is not complied with, the city may terminate water service to the customer subject the following procedures:

a. The city shall give the customer notice by mail that, due to the violation, water services will be discontinued with a specified time and that the customer will have the opportunity to appeal the termination by requesting a hearing scheduled before the city manager.

b. If such a hearing is requested by the customer charged with the violation, he or she shall be given a full opportunity to be heard before termination is ordered; and,

c. The city manager shall make findings of fact and order whether service should continue or be terminated.

(2) A fee of fifty dollars (\$50.00) shall be paid for the reconnection of any water service terminated pursuant to subsection (a). In the event of subsequent violation the reconnection fee shall be two hundred dollars (\$200.00) for the second violation and three hundred dollars (\$300.00) for each additional violation.

(3) Any customers may also be charged with any willful violation of this ordinance and prosecuted in the General Courts of Justice. Any person so charged and found guilty of violating the provisions of this chapter shall be guilty of a misdemeanor. Each day's violation shall constitute a separate offense. The penalty for violation shall be a maximum fine of fifty (\$50.00) and/or imprisonment for not more than thirty (30) days.

(Ord. of 9-24-07(1), § 1)

**Sec. 15B-17. Civil penalties.**

In addition to criminal prosecution, violation of this chapter may subject the offender to civil penalties in the amount of twenty-five (\$25.00) per day, collectible in a civil action in the nature of debt.

(Ord. of 9-24-07(1), § 1)

**Sec. 15B-18. Appeals.**

Any customer or other person aggrieved by a decision or action imposing an excess-use civil penalty or other remedy for noncompliance with the requirements of this ordinance may appeal in accordance with the following provisions:

(1) The customer or aggrieved party shall file a letter of appeal to city manager within (10) days of action to rebut the finding of a violation, or provide evidence of circumstances beyond the customer's control that resulted in the violation.

(2) A record of evidence regarding disputed violations shall be kept, and a written notice of the city manager's final decision and action in such cases shall be provided to the customer or aggrieved party.

(Ord. of 9-24-07(1), § 1)

**Sec. 15B-19. Return to Normal.**

When water shortage conditions have abated and the situation is returning to normal, water conservation measures employed during each phase should be decreased in reverse order of implementation. Permanent measures directed toward long-term monitoring and conservation should be implemented or continued so that the City will be in a better position to prevent shortages and respond to recurring water shortage conditions.

**Sec. 15B-20. Effectiveness.**

The effectiveness of the City of Henderson water shortage response plan will be determined by comparing the stated water conservation goals with observed water use reduction data. Other factors to be considered include frequency of plan activation, any problem periods without activation, total number of violation citations, desired reductions attained and evaluation of demand reductions compared to the previous year's seasonal data.

**Sec. 15B-21. Revision.**

The water shortage response plan will be reviewed and revised as needed to adapt to new circumstances affecting water supply and demand, following implementation of emergency restrictions, and at a minimum of every five years. Further, the Kerr Lake Regional Water Advisory Board and the staff of the City of Henderson will review procedures following each emergency or rationing stage to recommend any necessary improvements to the plan to the Henderson City Council. The City Manager is responsible for initiating all subsequent revisions to be considered by the City Council.

**Sec. 15B-22. Severability.**

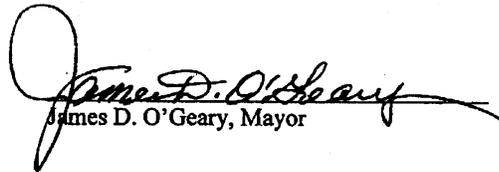
If any provision of this chapter is declared unconstitutional, or the application thereof to any person or circumstance is held invalid, the constitutionality of the remainder of the ordinance and its applicability to other person and circumstances shall not be affected thereby.  
(Ord. of 9-24-07(1), § 1)"

Section 2. Prior to adoption of this Ordinance, public comment will be permitted as follows:

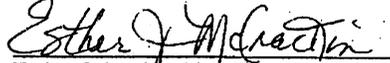
Customers will have multiple opportunities to comment on the provisions of the Water Shortage Response Ordinance. First, a draft ordinance will be available at City Hall for customers to view. A notice will be included in customer water bills notifying them of such. All subsequent revisions to the draft ordinance will be printed and made available at least 30 days prior to an adoption vote by Henderson City Council.

Section 3. The foregoing Ordinance shall be in full force and effect from and after the date of its passage.

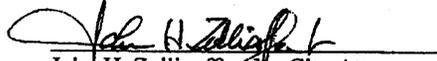
The foregoing Ordinance 11—04, upon motion of Council Member Peace-Jenkins and seconded by Council Member Daye, and having been submitted to a roll call vote and received the following vote and was APPROVED on this the 14<sup>th</sup> day of March, 2011: YES: Inscoc, Rainey, Peace-Jenkins, Daeke, Davis, Daye and Coffey. NO: None. ABSTAIN: None. ABSENT: None.

  
James D. O'Geary, Mayor

**ATTEST:**

  
Esther J. McCrackin, City Clerk

Approved to Legal Form:

  
John H. Zollicoffer, Jr., City Attorney

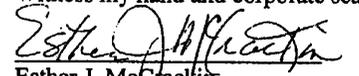
Reference: Minute Book 42, p. 68.  
CAF 10—166- Reference: Minute Book 41, pg 707  
Res 10—110 – Reference Resolution Book 1, pg 679

---

**STATE OF NORTH CAROLINA  
CITY OF HENDERSON**

I, Esther J. McCrackin, the duly appointed, qualified City Clerk of the City of Henderson, do hereby certify the foregoing Ordinance is a true and exact copy of *Ordinance 11—04, A Water Shortage Response Ordinance*, adopted by the Henderson, City Council in Regular Session on 14 March 2011 (See *Minute Book 42, p.68*). This Ordinance is recorded in *Ordinance Book # 8*, p. 211.

Witness my hand and corporate seal of the City, this 14<sup>th</sup> day of March 2011.

  
Esther J. McCrackin  
City Clerk  
City of Henderson, North Carolina

Appendix B  
Customer Water Shortage Response  
Plans

This page has been intentionally left blank.

# Town of Bunn

This page has been intentionally left blank.

**Water Shortage Response Plan  
Town of Bunn, North Carolina  
May 7, 2010**

The procedures herein are written to reduce potable water demand and supplement existing drinking water supplies whenever existing water supply sources are inadequate to meet current demands for potable water.

**I. Authorization**

The Bunn Town Clerk shall enact the following water shortage response provisions whenever the trigger conditions outlined in Section IV are met. In her absence, the Public Works Director will assume this role.

Ms. Judy M. Jeffreys  
Bunn Town Clerk  
Phone: (919) 496-2992  
E-mail:townofbunn@embarqmail.com

Mr. Rickey Jeffreys  
Town of Bunn Public Works Director  
Phone: (919) 496-2992  
E-mail: townofbunn@embarqmail.com

**II. Notification**

The following notification methods will be used to inform water system employees and customers of a water shortage declaration: employee e-mail announcements, notices at municipal buildings, notices in water bills. Required water shortage response measures will be communicated through PSA announcements on local radio and cable stations. Declaration of emergency water restrictions or water rationing will be communicated to all customers by telephone.

**III. Levels of Response**

Five levels of water shortage response are outlined in the table below. The five levels of water shortage response are: voluntary reductions, mandatory reductions I and II, emergency reductions and water rationing. A detailed description of each response level and corresponding water reduction measures follow below.

<b>Stage</b>	<b>Response</b>	<b>Description</b>
1	Voluntary Reductions	Water users are encouraged to reduce their water use and improve water use efficiency; however, no penalties apply for noncompliance. Water supply conditions indicate a potential for shortage.
2	Mandatory Reductions I	Water users must abide required water use reduction and efficiency measures; penalties apply for noncompliance. Water supply conditions are significantly lower than the seasonal norm and water shortage conditions are expected to persist.
3	Mandatory Reductions II	Same as in Stage 2
4	Emergency Reductions	Water supply conditions are substantially diminished and pose an imminent threat to human health or environmental integrity.
5	Water Rationing	Water supply conditions are substantially diminished and remaining supplies must be allocated to preserve human health and environmental integrity.

In Stage 1, Voluntary Reductions, all water users will be asked to reduce their normal water use by 5%. Customer education and outreach programs will encourage water conservation and efficiency measures including: irrigating landscapes a maximum of one inch per week; preventing water waste, runoff and watering impervious surfaces; watering plants deeply to encourage root growth; washing only full loads in clothes and dishwashers; using spring-loaded nozzles on garden hoses; and identifying and repairing all water leaks.

In Stage 2, Mandatory Reductions I, all customers are expected to reduce their water use by 10% in comparison to their previous month’s water bill. In addition to continuing to encourage all voluntary reduction actions, the following restrictions apply: irrigation is limited to a half inch per week between 8PM and 8AM; outdoor use of drinking water for washing impervious surfaces is prohibited; and all testing and training purposes requiring drinking water (e.g. fire protection) will be limited.

In Stage 3, Mandatory Reductions II, customers must continue actions from all previous stages and further reduce water use by 20% compared to their previous month’s water bill. All non-essential uses of drinking water are banned and garden and landscape irrigation must be reduced to the minimum amount necessary for survival. Additionally, in Stage 3, a drought surcharge of 1.5 times the normal water rate applies.

In Stage 4, Emergency Reductions, customers must continue all actions from previous stages and further reduce their water use by 25% compared to their previous month’s water bill. A ban on all use of drinking water except to protect public health and safety is implemented and drought surcharges increase to 2 times the normal water rate.

The goal of Stage 5, Water Rationing, is to provide drinking water to protect public health (e.g. residences, residential health care facilities and correctional facilities). In Stage 5, all customers are only permitted to use water at the minimum required for public health protection. Firefighting is the only allowable outdoor water use and pickup locations for distributing potable water will be announced according to Bunn's Emergency Response Plan. Drought surcharges increase to 5 times the normal water rate.

#### IV. Triggers

Bunn is provided water solely by purchase from the town of Franklin County Public Utilities. When Franklin County Public Utilities declares a water shortage Bunn is required to do so as well. During this time Bunn Public Works Director will stay in close contact with Franklin County Public Utilities and follow their triggers.

#### Return to Normal

When water shortage conditions have abated and the situation is returning to normal, water conservation measures employed during each phase should be decreased in reverse order of implementation. Permanent measures directed toward long-term monitoring and conservation should be implemented or continued so that the community will be in a better position to prevent shortages and respond to recurring water shortage conditions.

#### V. Enforcement

The provisions of the water shortage response plan will be enforced by Town of Bunn Public Works department and police personnel. Violators may be reported to the Town's dedicated water conservation hotline. Citations are assessed according to the following schedule depending on the number of prior violations and current level of water shortage.

<b>Water Shortage Level</b>	<b>First Violation</b>	<b>Second Violation</b>	<b>Third Violation</b>
Voluntary Reductions	N/A	N/A	N/A
Mandatory Reductions (Stages 2 and 3)	Warning	\$250	Discontinuation of Service
Emergency Reductions	\$250	Discontinuation of Service	Discontinuation of Service
Water Rationing	\$500	Discontinuation of Service	Discontinuation of Service

Drought surcharge rates are effective in Stages 3, 4 and 5.

## VI. Public Comment

Customers will have multiple opportunities to comment on the provisions of the water shortage response plan. First, a draft plan will be available at Town Hall for customers to view. A notice will be included in customer water bill notifying them of such. All subsequent revisions to the draft plan will be published at least 30 days prior to an adoption vote by Bunn's Town Commissioners.

## VII. Variance Protocols

Applications for water use variance requests are available from the Town Public Works Office. All applications must be submitted to the Public Works Office for review by the Public Works Director or his designee. A decision to approve or deny individual variance requests will be determined within two weeks of submittal after careful consideration of the following criteria: impact on water demand, expected duration, alternative source options, social and economic importance, purpose (i.e. necessary use of drinking water) and the prevention of structural damage.

## VIII. Effectiveness

The effectiveness of the Bunn water shortage response plan will be determined by comparing the stated water conservation goals with observed water use reduction data. Other factors to be considered include frequency of plan activation, any problem periods without activation, total number of violation citations, desired reductions attained and evaluation of demand reductions compared to the previous year's seasonal data.

## IX. Revision

The water shortage response plan will be reviewed and revised as needed to adapt to new circumstances affecting water supply and demand, following implementation of emergency restrictions, and at a minimum of every five years in conjunction with the updating of our Local Water Supply Plan. Further, a water shortage response planning work group will review procedures following each emergency or rationing stage to recommend any necessary improvements to the plan to Bunn's Town Commissioners. The Town of Bunn Public Works Director is responsible for initiating all subsequent revisions.

This page has been intentionally left blank.

# Franklin County

This page has been intentionally left blank.

**Water Shortage Response Plan  
Franklin County, North Carolina  
December, 2010**

The procedures herein are written to reduce potable water demand and supplement existing drinking water supplies whenever existing water supply sources are inadequate to meet current demands for potable water.

**I. Authorization**

The Franklin County Manager shall enact the following water shortage response provisions whenever the trigger conditions outlined in Section IV are met. In his or her absence, the Public Utilities Director will assume this role.

Ms. Angela L. Harris  
Franklin County Manager  
Phone: (919) 496-5994  
E-mail: [alharris@franklincoutync.us](mailto:alharris@franklincoutync.us)

J. Bryce Mendenhall  
Franklin County Public Utilities Director  
Phone: (919) 556-2205  
E-mail:  
[bmendenhall@franklincountync.us](mailto:bmendenhall@franklincountync.us)

**II. Notification**

The following notification methods will be used to inform water system employees and customers of a water shortage declaration: employee e-mail announcements, notices at municipal buildings, notices in water bills. Required water shortage response measures will be communicated through *The Franklin Times and The Franklin Weekly*, PSA announcements on local radio and cable stations and the County website (<http://www.co.franklin.nc.us>.) Declaration of emergency water restrictions or water rationing will be communicated to all customers by telephone via a reverse 911 call out system.

**III. Levels of Response**

Responses are in the attached Kerr Lake Regional Water System Plan (RWS) with the exception of year-round mandatory outdoor water use restrictions detailed below.

The mandatory water restrictions also limit the use of Franklin County supplied water for other uses such as power washing driveways, sidewalks, decks, patios, streets, and exterior building surfaces except on Saturdays and Sundays. The commercial use of power washers is permitted under these restrictions.

WATER USE	IRRIGATION SCHEDULE
Automatic/non- automatic irrigation systems	<b>ODD</b> -Tuesdays & Saturdays <b>EVEN</b> -Wednesdays & Sundays 12 a.m.(midnight) - 10:00 a.m.
Hose End Sprinklers	<b>ODD</b> -Tuesdays & Saturdays <b>EVEN</b> -Wednesdays & Sundays 6:00 am-10:00 am/6:00 pm-10:00 pm
Hand-Held Hose	<b>ODD</b> -Tuesdays & Saturdays <b>EVEN</b> -Wednesdays & Sundays 6:00 am-10:00 am/6:00 pm-10:00 pm
Vehicle Washing	Saturday & Sunday
Pressure Washing	Saturday & Sunday
No Watering Allowed	Mondays, Thursdays, & Fridays

Washing of private vehicles shall be allowed on any day of the week except in the event of extreme periods of water shortage (i.e. prolonged excessive drought, disruption of water supply, KLRWS mandatory restrictions, etc.)

The mandatory water use restrictions apply to all Franklin County Water Customers including those in the Town of Youngsville, Town of Bunn, and Lake Royale.

The first violation of these restrictions will result in a written warning, a second violation will result in a \$200 fine, a third violation will result in a \$500 fine, and a fourth will result in disconnection of the water service.

**EXEMPTIONS TO IRRIGATION REQUIREMENTS:**

The watering restrictions shall not apply to:

- 1) Properties using non-potable/reuse water for landscape irrigation.
- 2) Watering of commercial containerized plants and commercial plant stock in trade maintained for resale, and
- 3) Visually supervised operation of watering systems for short periods of time to check system condition.
- 4) Property owners may obtain a 45 day New Landscaping Establishment Permit from the Public Utilities Department for the purpose of establishing new plantings.

New plantings, for the purpose of this permit, are defined as the installation of new sod to the entire yard, whole yard first seeding, large commercial plantings or whole yard reestablishment (50% or greater disturbance of lawn). The permit will be applicable during the installation and for 45 days from substantial completion of the installation. Irrigation will be permitted during the hours 5:00am to 10:00am.

- a) The water level in any swimming or wading pool may be supplemented to provide for proper operation and sanitary pool conditions.
  
- b) Residents are prohibited from washing areas such as sidewalks, patios, decks, driveways, parking lots, streets and exterior building surfaces except on Saturdays and Sundays. This restriction shall not apply to the washing of soiled areas for maintenance of public health and sanitary conditions. The commercial use of power washers is permitted.

Leaking water services or plumbing must be repaired with five (5) days of written notification by the Public Utilities Department.

#### IV. Triggers

Franklin County is provided water solely by purchase from Kerr Lake RWS and the Town of Louisburg. When Kerr Lake RWS declares a water shortage Franklin County is required to do so as well. During this time the Franklin County Utilities Director, or his/her designee, will stay in close contact with Kerr Lake Water System and follow their triggers.

#### Return to Normal

When water shortage conditions have abated and the situation is returning to normal, water conservation measures employed during each phase should be decreased in reverse order of implementation. Permanent measures directed toward long-term monitoring and conservation should be implemented or continued so that the community will be in a better position to prevent shortages and respond to recurring water shortage conditions.

#### V. Enforcement

The provisions of the water shortage response plan will be enforced by Franklin County personnel and local law enforcement. Violators may be reported on the County's phone line. Citations are assessed according to the following schedule depending on the number of prior violations and current level of water shortage.

<b>Water Shortage Level</b>	<b>First Violation</b>	<b>Second Violation</b>	<b>Third Violation</b>
Voluntary Reductions	N/A	N/A	N/A
Mandatory Reductions (Stages 2 and 3)	Warning	\$200	\$500
Emergency Reductions	\$250	Discontinuation of Service	Discontinuation of Service
Water Rationing	\$500	Discontinuation of Service	Discontinuation of Service

Violation of this amendment to the Water Shortage Response Ordinance may be punished by any means available to Franklin County through the provisions of N.C.G.S 160A-175. A written warning will be issued for the first violation, a second violation of this ordinance is \$200.00, a third violation is \$500.00, and a fourth violation shall result in interruption of water service to the offending customer.

The County will issue written notification to the customer and occupant of intent to interrupt water service and twenty-four (24) hours later will interrupt water service unless the violation has ceased. Each day shall constitute a separate violation. If water service has been interrupted due to repeat violation of this ordinance, service will not be re-instated until the Public Utilities Director has determined that the risk to the County water supply has been alleviated or the Public Utilities Director is otherwise assured of compliance. All fines associated with violations of this ordinance shall be paid within thirty (30) days of first notification. Failure to do so will result in interruption of service. Service will not be restored until such time that all applicable fines have been paid.

#### VI. Public Comment

Customers will have multiple opportunities to comment on the provisions of the water shortage response plan. First, a draft plan will be available at County Offices for customers to view. A notice will be included in customer water bill notifying them of such. All subsequent revisions to the draft plan will be published at least 30 days prior to an adoption vote by Franklin County Commissioners.

#### VII. Variance Protocols

Customers may submit a written request to receive a variance from this policy. All requests must be submitted to the County Office for review by the County Manager or his or her designee. A decision to approve or deny individual variance requests will be determined within two weeks of submittal after careful consideration of the following criteria: impact on water demand, expected duration, alternative source options, social and economic importance, purpose (i.e. necessary use of drinking water) and the prevention of structural damage.

### VIII. Effectiveness

The effectiveness of the Franklin County water shortage response plan will be determined by comparing the stated water conservation goals with observed water use reduction data. Other factors to be considered include frequency of plan activation, any problem periods without activation, total number of violation citations, desired reductions attained and evaluation of demand reductions compared to the previous year's seasonal data.

### IX. Revision

The water shortage response plan will be reviewed and revised as needed to adapt to new circumstances affecting water supply and demand, following implementation of emergency restrictions, and at a minimum of every five years in conjunction with the updating of our Local Water Supply Plan. Further, a water shortage response planning work group will review procedures following each emergency or rationing stage to recommend any necessary improvements to the plan to Franklin County's Commissioners. The Franklin County Utility Director is responsible for initiating all subsequent revisions.

**KERR LAKE REGIONAL WATER SYSTEM  
HENDERSON, NORTH CAROLINA  
WATER SHORTAGE RESPONSE AGREEMENT**

This is an agreement authorizing the declaration of Water Shortage Conditions, and Establishing Procedures and Measures for the Essential Conservation of Water Resources. Be It Agreed on behalf of the Kerr Lake Regional Water System by the City of Henderson, the City of Oxford and Warren County all of North Carolina.

**SECTION 1. PURPOSE:**

The purpose of this agreement is to provide for the declaration of official phases of water supply shortage situations and the implementation of voluntary and mandatory water conservation measures in the event a shortage or water emergency is declared by the governing body or an appointed representative of the Kerr Lake Regional Water System. These measures would apply to the bulk customers, being the City of Henderson, the City of Oxford and Warren County. It shall be the responsibility of each of these bulk customer to notify its employees and customers.

**SECTION 2. DEFINITIONS:**

- (a) "Any Water," as the term is used in this agreement, shall mean any person using water, including fresh water, wastewater, or reclaimed water.
- (b) "Customer," as the term is used in this agreement, shall mean any person using water for any purpose from the Kerr Lake Regional Water Supply System and for which either a regular charge is made or, in this case of bulk sales, a cash charge is made at the site of delivery.
- (c) "Emergency," as the term is used in this agreement, shall mean that water supplies are below the level necessary, to meet normal needs and that serious shortages exist in the area.
- (d) "Excess Use," as the term is used in this agreement, shall mean the usage of water by a water customer in excess of water allotment provided under the water rationing provisions of this agreement for that customer, over any applicable period.
- (e) "Fresh Water," as the term is used in this agreement, shall mean water withdrawn from surface or groundwater that has not been previously used.
- (f) "Mandatory Conservation," as the term is used in this agreement, shall mean that raw water supplies reservoir levels are consistently below seasonal averages, and if they continue to decline, may not to be adequate to meet normal needs.
- (g) "Rationing," as the term is used in this agreement, shall mean procedures established to provide for the equitable distribution of critically-limited water supplies, in order to balance demand and limited available supplies, and to assure that sufficient water is available to preserve public health and safety.

- (h) “Voluntary Conservation,” as the term is used in this agreement, shall mean that conditions exist which indicate the potential for serious water supply shortages.
- (i) “Waste of Water,” as the term is used in this agreement, includes, but is not limited to (1) permitting water to escape down a gutter, ditch, or other surface drain, or (2) failure to repair a controllable leak of water due to defective plumbing.
- (j) “Water,” as the term is used in this agreement, shall mean water available to the City of Henderson, the City of Oxford and Warren County from the Kerr Lake Regional Water System by virtue of its contract, for introduction into their respective water distribution systems, including water offered for sale.
- (k) “Water Use Classes,” as the term used in this agreement, shall be established as follows:

CLASS 1 ESSENTIAL WATER USES:

Domestic Use:

- Water necessary to sustain human life and the lives of domestic pets, and to maintain minimum standards of hygiene and sanitation.

Health Care Facilities:

- Fire Hydrants
  1. Firefighting.
  2. Certain testing and drills by the fire department if performed in the interest of public safety and if approved by the municipal governing body.
- Flushing of Sewers and Hydrants: As needed to ensure public health and safety and if approved by the governing body.

CLASS 2 SOCIALLY OR ECONOMICALLY IMPORTANT USES OF WATER:

All Domestic Uses Other Than Those Included in Classes 1 and 3:

- Home water use including kitchen, bathroom and laundry use.
- Minimal watering of vegetable gardens.
- Watering of trees where necessary to preserve them.

Commercial, Agricultural, Industrial and Institutional Uses

- Outdoor commercial watering (public or private) using conservation measures and to the extent that sources of water other than fresh water are not available to use.
- Irrigation for commercial vegetable gardens and fruit orchards or the maintenance of livestock.
- Watering by commercial nurseries at a minimum level necessary to maintain stock.
- Water use by arboretums and public gardens of national, State, or regional significance where necessary to preserve specimens.
- Use of fresh water at minimum rate necessary to implement vegetation following earth moving, where such vegetation is required by law or regulation.
- Watering of golf course greens.
- Filling and Operation of Swimming Pools:
  1. Residential pools which serve more than 25 dwelling units.
  2. Pools used by health care facilities for patient care and rehabilitation.
  3. Municipal pools.
- Commercial car and truck washes.
- Commercial Laundromats.
- Restaurants, clubs, and Eating Places.
- Air Conditioning:
  1. Refilling for start up at the beginning of the cooling season.
  2. Make-up of water during the cooling season.
  3. Refilling specifically approved by health officials and the municipal governing body, where the system has been drained for health protection or repair purposes.
- Schools, Churches, Motels/Hotels and Similar Commercial Establishments.

**CLASS 3 NON-ESSENTIAL USES OF WATER:**

Ornamental Purposes:

- Fountains, reflecting pools, and artificial waterfalls.

Outdoor Non-Commercial Watering (public or private):

- Gardens, lawns, parks, golf course (except greens), playing fields and other recreational areas.
- Filling and operation of recreational swimming pools which serve fewer than 25 dwellings.
- Non-commercial washing of motor vehicles.
- Serving water in restaurants, clubs, or eating places except by specific request.
- Air Conditioning: refilling cooling towers after draining except as specified in Class 1.

**SECTION 3 DECLARATION OF VOLUNTARY CONSERVATION:**

Whenever the governing body of the Kerr Lake Regional Water System, finds the water level in Kerr Lake is nearing elevation 294, it shall declare that Voluntary Conservation conditions exist, and that the Director of the Kerr Lake Regional Water System shall, on a daily basis, monitor the lake level and the water use demand.

In addition, the Kerr Lake Regional Water System shall call upon its bulk customers to employ voluntary water conservation measures within 48 hours of receiving notice (see Addendum) to limit water use (especially Class 3 uses) and eliminate the waste of water. It shall be the responsibility of each of the bulk customers to employ voluntary water conservation measures on their water customers. The goal for water reduction shall be 5%.

**SECTION 4. DECLARATION OF MANDATORY CONSERVATION:**

Whenever the governing body of the Kerr Lake Regional Water System finds the water level in Kerr Lake is nearing elevation 289, it shall declare that Mandatory Conservation conditions exist. This implies that lake level is nearing a level where insufficient water can enter the raw water intake.

The Kerr Lake Regional Water System shall continue to encourage voluntary water conservation measures for the bulk customers of the Kerr Lake Regional Water System as defined under the Voluntary Conservation declaration, and shall further require mandatory measures be put in place, such as a ban be imposed on all Class 3 uses for the duration of the shortage. The goal for water reduction shall be 10%. Official notice shall be given to the City of Henderson, the City of Oxford, and Warren County.

Page 4 of 11 Pages

Water Shortage Response Agreement  
Kerr Lake Regional Water System

**SECTION 5. DECLARATION OF A WATER SHORTAGE EMERGENCY:**

Whenever the governing body of the Kerr Lake Regional Water System finds that water level in Kerr Lake has dropped to elevation 284 or below, and/or that a serious shortage exists due to other reasons it shall declare that a water shortage Emergency exists. It would be the recommendation of the Regional Water System that the City of Henderson, the City of Oxford and Warren County identify all Class 1, Essential Uses, in specific, and make them targets for voluntary conservation initiatives.

The Kerr Lake Regional Water System shall require mandatory measures be put in place, such as a ban be imposed on all Class 2 and Class 3 uses for the duration of the shortage. The goal for water reduction shall be 40%. These restrictions should be continued until the emergency is declared ended.

Official notice shall be given to the City of Henderson, the City of Oxford and Warren County of the emergency situation. It shall be the responsibility of each separate bulk water user, the City of Henderson, the City of Oxford and Warren County, to employ water restrictions on their water customers.

**SECTION 6. DECLARATION OF RATIONING:**

Whenever the governing body of the Kerr Lake Regional Water System finds that water level in Kerr Lake has dropped to elevation 280, declared a Water Shortage Emergency, and finds a need to provide for the equitable distribution of critically-limited water supplies, in order to balance demand on limited available supplies, and to assure that sufficient water is available to preserve public health and safety, it shall call for mandatory rationing by all three (3) of the members and their water users until the emergency is declared ended.

It shall be the responsibility of each of the three (3) members to employ water restrictions on their water customers.

During this emergency situation, the amount of water to each member could be reduced by fifty percent (50%) or more. This amount shall be determined by the governing body of the Kerr Lake Regional Water System. Official notice shall be given to the City of Henderson, City of Oxford and Warren County.

**SECTION 6A. OBJECTIVES OF RATIONING:**

It is imperative that water customers achieve an immediate further reduction in water use in order to extend existing water supplies and at the same time, assure that sufficient water is available to preserve the public health and sanitation and to provide fire protection service.

Hospitals and health care facilities should comply with all restriction imposed on residential and non-residential water customers as may be applicable to each individual institution, to the extent compliance will not endanger the health of the patients or residents of the institution.

## **SECTION 6B. ENFORCEMENT OF WATER RATIONING**

Each of three (3) members has primary responsibility for monitoring of compliance with the water-rationing measures. There are no enforcement provisions associated with this agreement.

## **SECTION 7. ENFORCEMENT**

In order to effectuate compliance with this plan, enforcement of water conservation restrictions shall be the responsibility of each of the three (3) bulk customers. Each customer shall employ measures not limited to written notices, administrative and civil penalties, and service disruption.

## **SECTION 8. VARIANCE PROTOCOL**

Kerr Lake Regional Water System understands that water restrictions can cause economic hardships on certain portions of their water customers: additionally, the restriction could be infeasible for others that have implemented water use reduction strategies into their daily practices prior to drought conditions being in place. Each of the three (3) bulk customers has the authority to consider variances for those showing proof of economic hardship, public health care facilities, or those that have previously implemented and documented water use reduction strategies such that achieving further water reduction goals may not be achievable. Each of the three (3) bulk customer shall adopt a protocol for accepting and ruling on a variance request. A copy of each variance request and decisions shall be forwarded to the governing body of the Kerr Lake Regional water System for record keeping.

## **SECTION 9. EFFECTIVENESS**

The effectiveness of the Kerr Lake Regional Water System WSRP will be determined by comparing the stated water conservation goals with observed water use reduction data for each of the three (3) bulk customers. Data will be compared against the previous non-water restrictions year's data to determine effectiveness of its actions. Tracking will be conducted using a spreadsheet, updated monthly, which compares water use against the baseline time period seasonal data. Other factors to be considered include use of a shortage water rate structure, frequency of plan activation, notification procedures, any problem periods without activation, and total number of enforcement actions.

## **SECTION 10. REVISION PROTOCOL**

This WSRP will be reviewed and revised as needed to adapt to new circumstances affecting water supply and demand, following implementation of emergency restrictions, and at a minimum of every five years in conjunction with the update in of the Local Water Supply Plans of each of the three (3) bulk customers. Further, the governing body of the Kerr Lake Regional Water System will review procedures following each emergency or rationing stage to recommend any necessary improvements to the plan. Each of the three (3) bulk customers shall also conduct a review of their plan and actions on this cycle and provide comments or suggestions to the Kerr Lake Regional Water System. If revisions are not recommended following a review, a memo will be filed documenting the effectiveness of the WSRP. The governing body of the Kerr Lake Regional Water System is responsible for initiating all subsequent revisions.

Page 6 of 11 Pages

Water Shortage Response Agreement  
Kerr Lake Regional Water System

**SECTION 11. EFFECTIVE DATE**

This agreement shall take effect immediately upon adoption or passage by the governing body of the Kerr Lake Regional Water System.

**SECTION 12. EFFECTIVE PERIOD**

This agreement will remain in effect until terminated by action of the governing body of the Kerr Lake Regional Water System.

**CITY OF HENDERSON**

Date

---

James D. O'Geary, Mayor

**CITY OF OXFORD**

Date

---

Alvin Woodlief, Jr., Mayor

**WARREN COUNTY**

Date

---

Barry Richardson, Chairman

## CONSERVATION MEASURES

Direct users to adopt the following conservation measures:

### INDOOR RESIDENTIAL USE:

#### CONSERVATION FOR VOLUNTARY AND MANDATORY CONSERVATION PHASES:

- Use dishwashers only when they are full. Washing dishes by hand (don't let the tap run!) Saves about 25 gallons.
- Adjust water level on clothes washing machines, if possible. Use full load only, if not adjustable.
- Turn off faucets while brushing teeth, etc. Saves about 5 gallons per day.
- Reduce water used per flush by installing toilet tank displacement inserts. A plastic jug may often be used as an alternative. **DO NOT USE BRICKS** – they disintegrate when soaked and the resulting grit hinders closing of the flap valve.
- Do not use the toilet as a trash can.
- Use sink and tub stoppers to avoid wasting water.
- Keep a bottle of chilled water in the refrigerator for drinking.
- Find and fix leaks in faucets and water-using appliances. Faucets can usually be fixed cheaply and quickly by replacing washers.
- Adapt plumbing with flow restricting or other water-saving devices. These are usually inexpensive and easy to install. See attached list of devices. (Need list.)
- Learn to read your water meter so you can judge how much water you use and what difference conservation makes.
- Take shorter showers and shallow baths. Saves about 25 gallons.
- Reduce the number of toilet flushes per day. Each flush uses about 5 gallons (2-3 if you have water saving toilets).
- Don't use a garbage disposal.
- Use non-phosphate detergent and save laundry water for lawns and plants.

CONSERVATION FOR EMERGENCY CONSERVATION OR RATIONING PHASE (In addition to measures listed above).

- Turn off shower while soaping up.
- Use disposable eating utensils.

#### OUTDOOR RESIDENTIAL USE

CONSERVATION FOR NORMAL CONDITIONS AND VOLUNTARY CONSERVATION PHASE:

##### Lawns:

- Water before 10:00 a.m. to prevent evaporation that occurs during the hottest part of the day. Morning is better than evening, when the dampness encourages growth of fungus.
- Water only when lawn shows signs of wilt. Grass that springs back when stepped on does not need water.
- Water thoroughly, not frequently: long enough to soak roots. A light sprinkling evaporates quickly and encourages shallow root systems. Water slowly to avoid runoff.
- Don't let the sprinkler run any longer than necessary. In an hour, 600 gallons can be wasted.
- Allow maximum of one inch of water per week on your lawn. To measure, place cake tins outside to collect rain and water from sprinklers.
- Use pistol-grip nozzles on hoses to avoid waste when watering flowers and shrubs.
- Aerate lawns by punching holes 6 inches apart. This allows water to reach roots rather than run off surfaces.
- Position sprinklers to water the lawn, not the pavement.
- Avoid watering on windy days when the wind not only blows water off target, but also causes excess evaporation.
- Keep sprinkler heads clean to prevent uneven watering.
- Adjust hose to simulate gentle rain. Sprinklers that produce a fine mist waste water through evaporation.
- Know how to turn off an automatic sprinkler system in case of rain.
- Use an alarm clock or stove timer to remind you to shut off sprinklers that don't have timers.

Vegetables and Flower Gardens:

- Water deeply, slowly and weekly. Most vegetables require moisture to a depth of 6 to 8 inches.
- Keep soil loose so water can penetrate easily.
- Keep weeds out to reduce competition for water.
- Put the water where you want it and avoid evaporation by using soil-soakers or slow running hoses, not sprinklers.

Trees and Shrubs:

- Water deeply using a soil-soaker or drip-irrigation.
- Water only when needed. Check the depth of soil dryness by digging with a trowel.
- Mulch to reduce evaporation. A 2” to 3” layer of wood chips, pine needles, grass clippings, or straw keeps the soil cool in summer.
- Dig troughs around plants to catch and retain water.
- Water trees growing in full sun more often than those in shade.
- Do not use sprinklers. Apply water directly at base.
- Do not fertilize during the summer. Fertilizing increases a plant’s need for water.
- Postpone planting until fall or spring when there is generally less need for water.
- Install trickle-drip irrigation systems close to the roots of your plants. By dripping water slowly, the system doesn’t spray water in to the air. Use soil probes for large trees.
- Water when cloudy, at night, or even when a light rain is falling.

**OUTDOOR RESIDENTIAL USE CONSERVATION FOR VOLUNTARY CONSERVATION PHASE**  
(in addition to measures listed above).

- Do not allow children to play with hose or sprinklers.
- Limit car washing.
- Be ready to catch rainfall that occurs. Place containers under drain sprouts.
- Use leftover household water if available.
- Consider delaying the seeding or sodding of new lawns.
- Determine the amount of water being used outdoors by comparing water bills for summer and winter.

CONSERVATION FOR MANDATORY CONSERVATION PHASE (In addition to measures listed above).

- Vegetable gardens and food trees should be given minimal amounts of water on an individual basis only.
- Do not water lawns and inedible plants.
- Do not use sprinklers.

*Most outdoor watering is prohibited under Emergency Conservation conditions.*

HOSPITAL AND HEALTH CARE FACILITY USE:

- Reduce laundry usage or services by changing the linens, etc. only when necessary to preserve the health of patients or residents.
- Use disposable food service items.
- Eliminate, postpone, or reduce, as they may be appropriate, elective surgical procedures during the period of emergency.

INDUSTRIAL USE

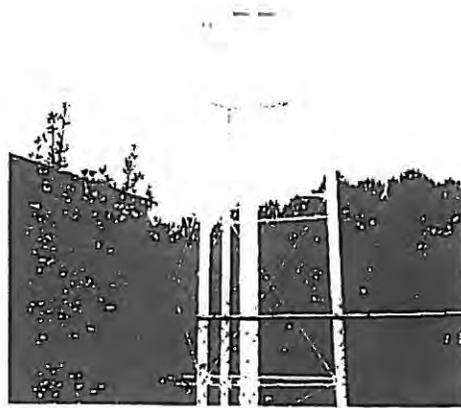
- Identify and repair all leaky fixtures and water-using equipment. Give special attention to equipment connected directly to waterlines, such as processing machines, steam-using machines, washing machines, water-cooled air conditioners, and furnaces.
- Assure that valves and solenoids that control water flows are shut off completely when the water-using cycle is not engaged.
- Adjust water-using equipment to use the minimum amount of water required to achieve its stated purpose.
- Shorten rinse cycles for laundry machines as much as possible; implement lower water levels wherever possible.
- For processing, cooling, and other uses, either re-use water or use water from sources that would not adversely affect public water supplies.
- Advise employees, students, patients, customers, and other users not to flush toilets after every use. Install toilet tank displacement inserts; place flow restrictors in showerheads and faucets; close down automatic flushes overnight.
- Install automatic flushing valves to use as little water as possible or to cycle at longer intervals.
- Place water-saving posters and literature where employees, students, patients, customers', etc. will have access to them.
- Check meters on a frequent basis to determine consumptive patterns.
- Review usage patterns to see where other savings can be made.

# Lake Royale

This page has been intentionally left blank.

WATER SHORTAGE RESPONSE PLAN  
FOR  
LAKE ROYALE COMMUNITY PUBLIC WATER SYSTEM

Louisburg, Franklin County, North Carolina  
PWS ID No. 0235108



Owner: Total Environmental Solutions, Inc.  
Post Office Box 14059  
Baton Rouge, LA 70898-4059

Water Shortage Response Plan  
Lake Royale Community Public Water System  
Franklin County, North Carolina  
PWS ID No. 235108

The procedures herein are written to reduce potable water demand and supplement existing drinking water supplies whenever existing water supply sources are inadequate to meet current demands for potable water. Total Environmental Solutions, Inc. (TESI) is regulated by the North Carolina Utilities Commission (NCUC). In addition to abiding by the provisions and orders established and issued by the NCUC regarding restrictions for nonessential water usage, TESI also abides by the mandates of the Franklin County Department officials.

## SECTION 1-ORGANIZATION DETAILS

### A. Organizational Structure of Management of Water System

Mr. William (Bill) Schoening, Chief Executive Officer, [bill@tesi-usa.com](mailto:bill@tesi-usa.com), 225-766-4591  
Mr. Jack Gibbons, On-Site Operational Supervisor, 252-478-4796  
Mrs. Melanie McCartt, Manager of Customer Relations, [mmccartt@tesi-usa.com](mailto:mmccartt@tesi-usa.com), 225-766-5192  
Ms. Kam Ansell, Manager of Compliance, [kansell@tesi-usa.com](mailto:kansell@tesi-usa.com), 225-766-4477, x 3025

### B. Roles & Responsibilities

TESI's Chief Executive Office oversees all staff associated with Lake Royale as well as to confer with the On-Site Operations Supervisor regarding any issues, major repairs, or problems regarding the facility. Upon issuance of orders concerning restrictions for nonessential water usage by the NCUC, the CEO will be the primary authority responsible for implementing all water shortage response protocols. In his absence, the On-Site Operational Supervisor will assume this role.

The On-Site Operational Supervisor is responsible for the day to day activities necessary to operate & maintain the facility, including implementing all water shortage response protocols.

The Manager of Customer Relations oversees the Customer Service department located at TESI's main office in Baton Rouge; as well as providing notification to the customers at Lake Royale.

The Manager of Compliance is responsible for regularly checking the drought response map at <http://www.ncwater.org/drought4.php>, filling out the Annual Water Use Report, and providing notification to the customers at Lake Royale.

## SECTION 2 – NOTIFICATION

### A. Customers

Customers are notified and informed in a number of different ways with regards to water shortage response protocols. This may include door hangers, regular mail, posting a public notice in *The Franklin Times* and *The Wake Weekly*, and posting the order on TESI's website at [www.totalenvironmentalsolutions.com](http://www.totalenvironmentalsolutions.com). All notifications will include a copy of the NCUC order as well as a detailed letter of explanation.

### B. Employees

Employees will be notified through email and fax. Emails and faxes will include a copy of the NCUC order, a copy of the customer letter, and detailed instructions of the protocol established for implementing the order.

### C. Determination of Severity, Implementation Criteria, and Levels of Response

On October 24, 2007, the NCUC issued Docket No. W-100, Sub 46 and WR-100, Sub 6, "Order Requiring Curtailment of Nonessential Water Usage" (Attachment 1). In May 23, 2008, an "Order Modifying Restrictions Concerning Nonessential Water Usage...." (Attachment 2) was issued, which eased the previous restrictions and established water conservation levels of response based upon the drought severity classifications as determined by the NC Drought Management Advisory Council (DMAC). Drought conditions are classified as Normal Conditions, Abnormally Dry (D0), Moderate Drought (D1), Sever Drought (D2), and Extreme Drought (D3). See Attachment 2 for response protocols applicable to each classification. TESI has adopted the levels of response as established by the NCUC order and we will revise our plan in accordance with any subsequent revisions to the order.

## SECTION 3 - EXCEPTIONS AND CLARIFICATIONS

A. Purchased Water Systems: In accordance with the May 23, 2008 Order, where Utilities, Inc. purchases water from a municipality and resells the water to our customers, these systems "...will be subject to the same water restrictions that are imposed by their local municipality that supplies their utility provider with water." (See Attachment 2, Page 2, Item 1).

B. Bi-County Systems: In accordance with the June 13, 2008 Order of Clarification (Attachment 2), where a water system is "... located in two counties with differing drought designations, the drought designation for such a subdivision would be the higher of the two designations..."

- C. **Special/Emergency Conditions:** For those systems with a history of water shortages due to high irrigation use during dry periods, we will continue our efforts to curtail these shortages by monitoring pump run times, elevated storage tank levels, and the time it takes for the system to recover from demand events. These same triggers shall be used to identify potential emergency outage situations (e.g., line breaks, equipment failure, etc.) that are not observed through routine maintenance operations.

<b>Water Conservation Protocol</b>	<b>Primary Trigger Condition: Pump Run Time</b>	<b>Secondary Trigger Condition: Elevated Storage Tank Capacity</b>
Year round wise water use	<12 hours/day for a period of one week	> 90 %
Voluntary Conservation	>12 hours/day for a period of two weeks or more	70 %
Mandatory Conservation	>18 hours/day for a period of two weeks or more	50 %
Emergency Conservation	> 22 hours/day for a period of two weeks or more	20%

- D. **Enforcement Provisions:** In accordance with Item 4 of the May 23, 2008 Order (See Attachment 2, Page 6, Item 4), "...a regulated water company should be allowed to disconnect a water customer if he or she violates the restrictions set out in this Order. However, a customer must be provided a 24-hour notice prior to disconnection (for this purpose a door hanger type notice will be sufficient). The customer will have a full business day...after the date of notification to show cause why his or her service should not be disconnected...(and) should contact the Operations Division of the Commission by telephone at (919) 733-3979. If the customer does not successfully show cause, the utility may disconnect service at the end of the next business day. The utility shall immediately notify the Commission when it disconnects a customer's service for violation of these nonessential water usage restrictions."
- E. **Customer Review & Comment:** On May 1, 2008, the NCUC issued an "Order Requesting Comments" which gave water users and water suppliers the opportunity to provide comments for the modification of the October 24, 2007 water usage restrictions. According to the NCUC, these comments were taken into consideration and incorporated into the May 23, 2008 revision to the Order.
- F. **Variance Considerations:** The NCUC will consider exceptions to the restrictions on an individual basis in accordance with Item 5 of the October 24, 2007 order (See Attachment 1, Page 3, Item 5). "Those desiring an exception shall send a written statement to the Commission outlining the reason(s) that they should be excluded from this restriction."

- G. Measurement of Success: Effectiveness of the water shortage response protocols will be evaluated on a statewide basis by the DMAC. Utilities, Inc. will continue to closely monitor the water usage in our systems (e.g. well production, pump run times, groundwater levels and elevated storage tank levels).
- H. Revisions to Protocol: In accordance with the May 23, 2008 NCUC Order, revisions to drought response actions are dependant upon the DMAC drought severity classification for a particular area. “The level of restrictions applicable to a particular county will vary as the DMAC drought severity map classifications change from week to week every Thursday. For this purpose, the official drought severity classification for each county will be designated in accordance with DMAC’s placement of each county in its listing for “Counties Under Current Advisory. The entire county is designated under a single classification which is based upon the highest level of drought severity applicable to any portion of the county in questions.” ” (See Attachment 2, Page 3, Item 3).
- I. Water Impoundment Owned by Others: In those systems where the water supply and storage facilities are not owned or controlled by Utilities, Inc. (i.e., Purchased Water Systems), the Water Shortage Response procedures shall be in accordance with the protocol established by the municipal water supplier. Our customers in these systems will be provided with contact information for the water supplier. See Item C.1., above and Attachment 2, Page 2, Item 1 for NCUC clarification.



Governor Easley asked top officials of the state's cities and towns to lead their communities in taking the following actions:

- Stop watering lawns and shrubbery at homes and businesses. Period.
- Do not wash down houses, driveways or sidewalks.
- Do not wash your car.
- Restaurants should ONLY serve water when patrons ask.

Many municipalities have recently initiated total bans on all outside watering. Prior to the Governor's October 15, 2007 Message, Charlotte-Mecklenburg Utilities banned outside watering on September 24<sup>th</sup>. After the Governor's Message, the City of Raleigh banned outside watering on October 16<sup>th</sup> and the Town of Cary banned outside watering on October 17<sup>th</sup>.

As indicated in its September 18, 2007 Memorandum to all Commission-certificated water and water resale companies, the North Carolina Utilities Commission supports the Governor's call for water conservation and curtailment of water usage for any purpose that is not essential to public health and safety.

Based upon the foregoing, the Commission is of the opinion that an Order should be issued requiring all citizens served by water and water resale companies regulated by the Commission to curtail water usage for any purpose that is not essential to public health and safety.

IT IS, THEREFORE, ORDERED as follows:

1. That a copy of this Order shall be mailed with sufficient postage or be hand delivered by all Commission-regulated water and water resale companies to all customers within five days following the date of this Order. Further, each water and water resale company shall submit to the Commission the attached Certificate of Service, properly signed and notarized, within seven days of completing such requirement.

2. That water use by the customers of all Commission-regulated water and water resale companies shall be restricted to essential household or business use only. Nonessential water use includes, but is not limited to, the following:

- Watering lawns and shrubbery at homes and businesses.
- Washing down houses, driveways, or sidewalks.
- Washing cars.
- Restaurants serving water to patrons who have not directly requested water.

3. That this restriction shall begin on November 1, 2007, and shall continue until revised by further order of the Commission.

4. That customers violating the provisions of this Order may have their water service discontinued **only upon their water/water resale company seeking and receiving authorization from the Commission to do so**. Upon a violation of the provisions of this Order, the water/water resale company shall immediately furnish to the Commission the name(s) and address(es) of the customer(s) and a written explanation of each alleged violation of this Order. The Commission will consider receipt of such information as a request for permission to terminate utility service, will consider the circumstances, and will authorize further action as then deemed appropriate.

5. That exceptions to this restriction (either by individual customers or by a Commission-regulated water/water resale utility) shall be reviewed by the Commission on an individual basis. Those desiring an exception shall send a written statement to the Commission outlining the reason(s) that they should be excluded from this restriction. However, due to the unprecedented drought conditions noted above, exceptions to allow for the watering of lawns and shrubbery will not be allowed.

6. That, if the customer notification requirement contained herein causes financial hardship to any Commission-regulated water or water resale company, said company may apply to the Commission for consideration of appropriate relief.

ISSUED BY ORDER OF THE COMMISSION.

This the 24<sup>th</sup> day of October, 2007.

NORTH CAROLINA UTILITIES COMMISSION

*Gail L. Mount*

Gail L. Mount, Deputy Clerk

rb102307 01

Commissioner James Y. Kerr, II, did not participate.

CERTIFICATE OF SERVICE

I, \_\_\_\_\_, mailed with sufficient postage or hand delivered to all affected customers a copy of the Order issued by the North Carolina Utilities Commission in Docket No. W-100, Sub 46 and WR-100, Sub 6 and such Order was mailed or hand delivered by the date specified in the Order.

This the \_\_\_\_\_ day of \_\_\_\_\_ 2007.

By: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Name of Utility Company

The above named Applicant, \_\_\_\_\_, personally appeared before me this day and, being first duly sworn, says that the required copy of the Commission Order was mailed or hand delivered to all affected customers, as required by the Commission Order dated \_\_\_\_\_ in Docket No. W-100, Sub 46 and WR-100, Sub 6.

Witness my hand and notarial seal, this the \_\_\_\_\_ day of \_\_\_\_\_ 2007.

\_\_\_\_\_  
Notary Public

\_\_\_\_\_  
Address

(SEAL) My Commission Expires: \_\_\_\_\_

Date

**STATE OF NORTH CAROLINA  
UTILITIES COMMISSION  
RALEIGH**

DOCKET NO. W-100, SUB 46  
DOCKET NO. WR-100, SUB 6

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of	)	
Year 2007 Drought	)	ORDER MODIFYING RESTRICTIONS
Response - Water	)	CONCERNING NONESSENTIAL WATER USAGE
Conservation Measures	)	AND REQUIRING NOTICE

BY THE COMMISSION: On October 24, 2007, the Commission issued an Order Requiring Curtailment of Nonessential Water Usage in the above-captioned dockets. Following issuance of said Order, the drought continued to worsen until the end of December. Since that time, the State has been receiving beneficial precipitation. While the drought is certainly not over, conditions have improved to the point that it seems to be appropriate to relax the Commission-mandated restrictions in certain areas in certain respects.

In October 2007, the statewide nature of this exceptional drought warranted the drastic action taken by the Commission which required the curtailment of all nonessential water usage. As the drought eased somewhat and as some anomalies in the effects of the nonessential water use restrictions previously adopted by the Commission have been detected, the Commission identified several areas within the State in which it considered releasing or relaxing some of the presently imposed restrictions on water usage that have been in place since October 24, 2007. Therefore, on May 1, 2008, the Commission issued an Order Requesting Comments regarding its proposals to modify the October 24, 2007, Order. Such comments were required to be filed by the Public Staff and any other interested parties by May 14, 2008. The Commission received comments from the Public Staff, Aqua North Carolina, Inc., Carolina Water Service, Inc. of North Carolina, and several interested customers. The Commission has carefully considered these comments in determining that the water usage restrictions imposed in the October 24, 2007, Order should be modified in the following respects.

The Commission's proposals relating to Purchased-Water Systems and Cumberland County Type Circumstance were not controversial. Instead, all parties recommended the adoption of those proposals. As a result, the Commission concludes that they should be adopted as follows.

**1. Purchased-Water Systems**

While a majority of the water systems throughout North Carolina regulated by the Utilities Commission acquire their water from utility-owned wells, many systems purchase their water from other sources and resell the water to their customers.

All of the companies classified as water resellers (identified by docket numbers that begin with "WR") purchase their water from municipal sources that are not regulated by the Commission. The Commission is of the opinion that it is inconsistent for customers of water resellers to be subject to different nonessential water usage restrictions than the municipal customers who receive water from the same source. Therefore, the Commission will allow "WR" customers to be subject to the same water restrictions regarding nonessential water usage that have been imposed by the local municipality from which the water that they consume is being purchased.

Furthermore, a number of traditional water utilities (those with docket numbers beginning with "W") operate certain systems that, for various reasons, purchase water from a municipality for resale to their customers. It is, likewise, inconsistent for customers served by these purchased-water systems to be subject to restrictions regarding nonessential water usage that are different from those to which municipal customers utilizing the same source of water are subject. Therefore, the Commission will require the water utility companies to identify all of their specific systems utilizing purchased water and to notify the customers on those systems that they will be subject to the same water restrictions that are imposed by their local municipality that supplies their utility provider with water. The water utility is hereby required to provide the Commission with a listing (including subdivision name, county name, name of supplier, and number of customers) of all service areas so identified within twenty days of this Order.

## **2. Cumberland County-Type Circumstance**

The Commission is aware of a large service area franchised to Aqua North Carolina in the Cumberland County area that uses well water to serve a portion of the service area and that also uses water purchased from the Fayetteville Public Works Commission (PWC) to provide service in another portion of the service area.

As discussed above, the Commission believes it is incongruous for customers whose source of water is water purchased from an entity like the PWC to be subject to restrictions regarding nonessential water usage that are different from those applicable to customers served by entities like the PWC. The Commission is of the opinion that these customers should be subject to the restrictions for nonessential water usage adopted by the PWC or a similar entity. However, it would be very confusing for customers within the same service area to be subject to two different sets of water usage restrictions. Therefore, the Commission believes that it would be appropriate to require the utility in such a situation to identify the systems utilizing both purchased water and well water and notify the customers served by these systems that they will be subject to the same water restrictions imposed by their local municipality from which a portion of their water supply is purchased. The utility is required to provide the Commission with a listing (including subdivision name, county name, name of supplier, and number of customers with well water and the number of customers with municipal-supplied water) of all service areas so classified within twenty days of this Order. This approach is not applicable solely to the Cumberland County situation described above, but may be implemented anywhere a similar situation exists which has been properly identified for the benefit of the Commission.

### 3. Remainder of the Proposals

The remainder of the proposals (Coastal Counties, Metrolina Counties, and Remainder of the State) set out in the Commission's May 1, 2008, Order were the subject of many comments, remarks, and observations. As noted earlier, the beneficial rains of late winter have caused the effects of the drought to lessen. As soon as reservoirs filled up, many municipalities relaxed their water restriction guidelines relating to nonessential water usage. This rush to relax existing water usage restrictions was followed by a press release from Governor Easley in which he noted that he had written a letter to local officials asking them to continue their aggressive water conservation efforts because the drought is not over. The Commission has not joined in the premature rush to relaxation of restrictions.

The North Carolina Drought Management Advisory Council (DMAC) maintains a website on which the North Carolina portion of the United States Drought Monitor's drought severity map is displayed. This map showing the location and the severity of the drought is updated weekly. The DMAC urges implementation of drought response actions for all users located in or dependent on water resources derived from areas experiencing exceptional, extreme, severe, or moderate drought or abnormally dry conditions.

Based upon the DMAC's reclassification of the severity of the drought across the State, the recommended drought response actions, and the comments submitted by the parties, the Commission finds and concludes that it is appropriate to relax some of its existing restrictions depending upon the drought severity classification applicable to specific areas (the Commission-regulated water systems located within a particular area composed of specific counties will be subject to the water restrictions as defined by the Commission below). The Commission will maintain a webpage entitled *Non-Essential Water Usage Restrictions*, on its website, [www.ncuc.net](http://www.ncuc.net), whereupon the varying restrictions will be listed by drought severity classifications. The webpage will contain a hyperlink to the DMAC drought severity map. The level of restrictions applicable to a particular county will vary as the DMAC drought severity map classifications change from week to week every Thursday. For this purpose, the official drought severity classification for each county will be designated in accordance with DMAC's placement of each county in its listing for "Counties Under Current Advisory." The entire county is designated under a single classification which is based upon the highest level of drought severity applicable to any portion of the county in question.

**Normal Conditions**

**(No drought classification – counties that are completely white on DMAC's map)**

Voluntary odd-even spray irrigation three days per week:

Odd addresses: Tuesday 10 p.m. to Wednesday 4 a.m.  
Thursday 10 p.m. to Friday 4 a.m.  
Saturday 10 p.m. to Sunday 4 a.m.  
Even addresses: Wednesday 10 p.m. to Thursday 4 a.m.  
Friday 10 p.m. to Saturday 4 a.m.  
Sunday 10 p.m. to Monday 4 a.m.

Handheld use of a container or hose to water flowers, shrubs, trees, and vegetable gardens is allowable at anytime.

Car washing is allowable at anytime.

Filling of swimming pools or topping-off pools is allowable at anytime.

**D0 Abnormally Dry**  
**(Yellow on DMAC map)**

Mandatory odd-even spray irrigation three days per week:

Odd addresses: Tuesday 10 p.m. to Wednesday 4 a.m.  
Thursday 10 p.m. to Friday 4 a.m.  
Saturday 10 p.m. to Sunday 4 a.m.  
Even addresses: Wednesday 10 p.m. to Thursday 4 a.m.  
Friday 10 p.m. to Saturday 4 a.m.  
Sunday 10 p.m. to Monday 4 a.m.

Handheld use of a container or hose to water flowers, shrubs, trees, and vegetable gardens is allowable at anytime.

Car washing is allowable at anytime.

Filling of swimming pools or topping-off pools is allowable at anytime.

**D1 Moderate Drought**  
**(Beige on DMAC map)**

Mandatory odd-even spray irrigation two days per week:

Odd addresses: Tuesday 10 p.m. to Wednesday 4 a.m.  
Thursday 10 p.m. to Friday 4 a.m.  
Even addresses: Wednesday 10 p.m. to Thursday 4 a.m.  
Friday 10 p.m. to Saturday 4 a.m.

Handheld use of a container or hose to water flowers, shrubs, trees, and vegetable gardens is allowable at anytime.

Car washing is allowable at anytime.

Filling of swimming pools or topping-off pools is allowable at anytime.

**D2 Severe Drought**  
**(Light Orange on DMAC map)**

Mandatory odd-even spray irrigation two days per week:

Odd addresses: Tuesday 10 p.m. to Wednesday 1 a.m.  
Thursday 10 p.m. to Friday 1 a.m.  
Even addresses: Wednesday 10 p.m. to Thursday 1 a.m.  
Friday 10 p.m. to Saturday 1 a.m.

Handheld use of a container or hose to water flowers, shrubs, trees, and vegetable gardens is allowable on any day (8 p.m. to 8 a.m.).

Car washing – odd addresses on Saturday/even addresses on Sunday.

**No filling of swimming pools** - Topping-off pools only 12 inches per week.

**D3 Extreme Drought**  
**(Red on DMAC map)**

Mandatory odd-even spray irrigation one day per week:

Odd addresses: Tuesday 10 p.m. to Wednesday 1 a.m.  
Even addresses: Wednesday 10 p.m. to Thursday 1 a.m.

Handheld use of a container or hose to water flowers, shrubs, trees, and vegetable gardens is allowable on any day (8 p.m. to 8 a.m.).

Car washing – odd addresses on Saturday/even addresses on Sunday.

**No filling of swimming pools – No topping-off pools.**

**D4 Exceptional Drought**  
**(Burgundy on DMAC map)**

**No spray irrigation.**

Handheld use of a container or hose to water flowers, shrubs, trees, and vegetable gardens is allowable on any day (8 p.m. to 8 a.m.).

**No car washing.**

**No filling of swimming pools – No topping-off pools.**

**4. Other Considerations**

A concern expressed by certain customers was that some neighboring customers are violating the current water restrictions without consequence. The companies have commented on the cumbersome nature of the existing procedures that require catching a violator in the act, documenting the violation, warning the violator, asking the Commission for authority to disconnect the violator upon the next violation, receiving permission from the Commission to disconnect the customer, serving the Order granting permission to disconnect on the customer, and witnessing a subsequent violation before a violator may be disconnected. Based upon the foregoing, the Commission is of the opinion that the existing enforcement procedures should be streamlined and that a regulated water company should be allowed to disconnect a water customer if he or she violates the restrictions set out in this Order. However, a customer must be provided a 24-hour notice prior to disconnection (for this purpose a door hanger type notice will be sufficient). The customer will have a full business day<sup>1</sup> after the date of notification to show cause why his or her service should not be disconnected. A customer seeking to show cause why his or her service should not be disconnected should contact the Operations Division of the Commission by telephone at (919) 733-3979. If the customer does not successfully show cause, the utility may disconnect service at the end of the next business day. The utility shall immediately notify the Commission when it disconnects a customer's service for violation of these nonessential water usage restrictions. Except as modified in this Order, the other enforcement procedures specified in the Commission's October 24, 2007, Order remain in full force and effect.

The Commission is also of the opinion that the water companies should be required to provide periodic nonessential water usage restriction updates to their customers by bill inserts and inform customers that they may call their local water utility provider to check on the current water usage restrictions for their county.

Several other suggestions (such as monetary penalties for violations, penalties based on excessive usage as determined by meter readings instead of witnessing a violation, and inclining block rates (tiered rates), etc.) were advanced by various commenters. While not adopting these

---

<sup>1</sup> A "business" day does not include weekends or holidays. As a result, a Commission-regulated water utility may not disconnect a customer for violating these restrictions on nonessential water usage until after one business day has elapsed after the notice of disconnection has been provided to the affected (e.g., if the notice is provided on Tuesday, service may be discontinued on Thursday, or if notice is provided on Saturday, service may be discontinued on Tuesday).

ideas at this time, the Commission will take these and other suggestions under advisement and reserves the right to implement additional restrictions or enforcement measures in the event that the Commission has the authority to implement such measures and believes that their implementation would be appropriate. The Commission does, however, note that it has significant concerns about the extent of its authority to authorize utilities to impose monetary penalties on customers violating water usage restrictions.

Based upon the foregoing, the Commission is of the opinion that it should modify the restrictions which were put in place by the Order issued on October 24, 2007, as noted above, and it should require that a copy of this Order be mailed with sufficient postage or be hand delivered by all Commission-regulated water and water resale companies to all customers no later than 10 days after the date of this Order.

IT IS, THEREFORE, SO ORDERED.

ISSUED BY ORDER OF THE COMMISSION.

This the 23<sup>rd</sup> day of May, 2008.

NORTH CAROLINA UTILITIES COMMISSION

*Gail L. Mount*

rb052008 01

Gail L. Mount, Deputy Clerk

Commissioners Robert V. Owens, Jr., and James Y. Kerr, II, did not participate.

STATE OF NORTH CAROLINA  
UTILITIES COMMISSION  
RALEIGH

DOCKET NO. W-100, SUB 46  
DOCKET NO. WR-100, SUB 6

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of  
Year 2007 Drought Response - Water ) ORDER OF CLARIFICATION  
Conservation Measures )

BY THE COMMISSION: On May 23, 2008, the Commission issued an Order Modifying Restrictions Concerning Nonessential Water Usage and Requiring Notice in the above-captioned matter. On May 28, 2008, Utilities, Inc. (UI), filed a Motion for Clarification in the matter.

UI noted that several of their subsidiaries own and operate several water systems that extend into more than one county. As a result of the geographic location of these systems, situations may arise where a system extends into two counties with different drought classifications. Based on the May 20, 2008, DMAC drought severity map (the map in existence at the time the Order Modifying Restrictions was issued), Cabarrus County was classified as a severe drought category and Mecklenburg County was classified as an extreme drought category. The service area of Cabarrus Woods Subdivision (owned by Carolina Water Service, Inc., of North Carolina) lies in both counties. In the example given above by UI, customers in one end of the subdivision could irrigate twice a week, while customers in the other end could only irrigate once a week. UI noted that this could be very confusing to the customers and could hamper enforcement efforts by the utility.

UI requested that the Commission issue an Order clarifying what level of water restrictions should be applied to a water system in multiple counties with different drought designations.

Based upon the foregoing, the Commission is of the opinion that an Order should be issued clarifying that, in the case of water system located in two counties with differing drought designations, the drought designation for such a subdivision would be the higher of the two designations (In the example above, extreme drought is D3 and severe drought is D2, therefore Cabarrus Woods would come under the restrictions for extreme drought).

IT IS, THEREFORE, SO ORDERED.

ISSUED BY ORDER OF THE COMMISSION.

This the 13th day of June, 2008.

NORTH CAROLINA UTILITIES COMMISSION



Patricia Swenson, Deputy Clerk



February 27, 2008

To all Franklin County Water System Users:

The Franklin County Board of Commissioners formally adopted a year-round lawn irrigation schedule on February 18, 2008. The recommendation was made by the Public Utilities Department in response to increasing demand on the water system for non-essential uses.

Franklin County officials felt it necessary to implement additional mandatory water rules to protect the public health, safety, and welfare through the provision of adequate water for drinking, sanitation, and fire protection services.

These new rules became effective on the date of adoption and the Franklin County Public Utilities Department will start enforcing them on March 1, 2008. Please refer to the chart listed below for specific information regarding water use:

<b>WATER USE</b>	<b>IRRIGATION SCHEDULE</b>
Automatic/non-automatic irrigation systems	<b>ODD-Tuesdays &amp; Saturdays</b> <b>EVEN-Wednesdays &amp; Sundays</b> 12 a.m.(midnight) - 10:00 a.m.
Hose End Sprinklers	<b>ODD-Tuesdays &amp; Saturdays</b> <b>EVEN-Wednesdays &amp; Sundays</b> 6:00 am-10:00 am/ 6:00 pm-10:00 pm
Hand-Held Hose	<b>ODD-Tuesdays &amp; Saturdays</b> <b>EVEN-Wednesdays &amp; Sundays</b> 6:00 am-10:00 am/ 6:00 pm-10:00 pm
Vehicle Washing	Saturday & Sunday
Pressure Washing	Saturday & Sunday
No Watering Allowed	Mondays, Thursdays, & Fridays

The mandatory water restrictions also limit the use of Franklin County supplied water for other uses such as washing vehicles at home, power washing driveways, sidewalks, decks, patios, streets, and exterior building surfaces except on Saturdays and Sundays. The commercial use of power washers is permitted under these restrictions.

The mandatory water use restrictions apply to all Franklin County Water Customers including those in the Town of Youngsville, Town of Bunn, and Lake Royale.

The first violation of these restrictions will result in a written warning, a second violation will result in a \$200 fine, a third violation will result in a \$500 fine, and a fourth will result in disconnection of the water service.

Franklin County is working hard to manage our available resources and your cooperation in this effort will be greatly appreciated. If you have questions concerning this matter, please feel free to contact the Public Utilities Department @ 919-556-6177 or visit the county website [www.franklincountync.us](http://www.franklincountync.us).

This page has been intentionally left blank.

# Town of Norlina

This page has been intentionally left blank.

**Water Shortage Response Plan  
Town of Norlina, North Carolina  
February, 2011**

The procedures herein are written to reduce potable water demand and supplement existing drinking water supplies whenever existing water supply sources are inadequate to meet current demands for potable water.

**I. Authorization**

The Town of Norlina Clerk shall enact the following water shortage response provisions whenever the trigger conditions outlined in Section IV are met. In his or her absence, the Public Works Director will assume this role.

Ms. Amy Carter  
Town of Norlina Clerk  
Phone: (252) 456-3325  
E-mail: townclerk@townofnorlina.com

Blaine Reese  
Town of Norlina Public Works Director  
Phone: (252) 456-3325  
E-mail: waterdept@townofnorlina.com

**II. Notification**

The following notification methods will be used to inform water system employees and customers of a water shortage declaration: employee e-mail announcements, notices at municipal buildings, notices in water bills. Required water shortage response measures will be communicated through *The Warren Record*, PSA announcements on local radio and cable stations and the town's website (<http://www.norlina.com/>). Declaration of emergency water restrictions or water rationing will be communicated to all customers by telephone or door hangers if necessary.

**III. Levels of Response**

Responses are in the attached Kerr Lake Regional Water System Plan (RWS).

**IV. Triggers**

Town of Norlina is provided water solely by purchase from Kerr Lake RWS. When Kerr Lake RWS declares a water shortage the town of Norlina is required to do so as well.

During this time Town of Norlina Works Director will stay in close contact with Kerr Lake Water System and follow their triggers.

Return to Normal

When water shortage conditions have abated and the situation is returning to normal, water conservation measures employed during each phase should be decreased in reverse order of implementation. Permanent measures directed toward long-term monitoring and conservation should be implemented or continued so that the community will be in a better position to prevent shortages and respond to recurring water shortage conditions.

V. Enforcement

The provisions of the water shortage response plan will be enforced by Town of Norlina personnel and local law enforcement. Violators may be reported on the Town’s phone line. Citations are assessed according to the following schedule depending on the number of prior violations and current level of water shortage.

<b>Water Shortage Level</b>	<b>First Violation</b>	<b>Second Violation</b>	<b>Third Violation</b>
Voluntary Reductions	N/A	N/A	N/A
Mandatory Reductions (Stages 2 and 3)	Warning	\$250	Discontinuation of Service
Emergency Reductions	\$250	Discontinuation of Service	Discontinuation of Service
Water Rationing	\$500	Discontinuation of Service	Discontinuation of Service

VI. Public Comment

Customers will have multiple opportunities to comment on the provisions of the water shortage response plan. First, a draft plan will be available at Town Hall for customers to view. A notice will be included in customer water bill notifying them of such. All subsequent revisions to the draft plan will be published at least 30 days prior to an adoption vote by Town of Norlina Commissioners.

VII. Variance Protocols

Applications for water use variance requests are available from the Town Hall. All applications must be submitted to the Town Hall for review by the Town Clerk or his or her designee. A decision to approve or deny individual variance requests will be determined within two weeks of submittal after careful consideration of the following

criteria: impact on water demand, expected duration, alternative source options, social and economic importance, purpose (i.e. necessary use of drinking water) and the prevention of structural damage.

#### VIII. Effectiveness

The effectiveness of the Town of Norlina water shortage response plan will be determined by comparing the stated water conservation goals with observed water use reduction data. Other factors to be considered include frequency of plan activation, any problem periods without activation, total number of violation citations, desired reductions attained and evaluation of demand reductions compared to the previous year's seasonal data.

#### IX. Revision

The water shortage response plan will be reviewed and revised as needed to adapt to new circumstances affecting water supply and demand, following implementation of emergency restrictions, and at a minimum of every five years in conjunction with the updating of our Local Water Supply Plan. Further, a water shortage response planning work group will review procedures following each emergency or rationing stage to recommend any necessary improvements to the plan to Town of Norlina's Commissioners. The Town of Norlina Public Works Director is responsible for initiating all subsequent revisions.

**Attachment A Resolution 10-110**

**KERR LAKE REGIONAL WATER SYSTEM  
HENDERSON, NORTH CAROLINA  
WATER SHORTAGE RESPONSE AGREEMENT**

This is an agreement authorizing the declaration of Water Shortage Conditions, and Establishing Procedures and Measures for the Essential Conservation of Water Resources. Be It Agreed on behalf of the Kerr Lake Regional Water System by the City of Henderson, the City of Oxford and Warren County all of North Carolina.

**SECTION 1. PURPOSE:**

The purpose of this agreement is to provide for the declaration of official phases of water supply shortage situations and the implementation of voluntary and mandatory water conservation measures in the event a shortage or water emergency is declared by the governing body or an appointed representative of the Kerr Lake Regional Water System. These measures would apply to the bulk customers, being the City of Henderson, the City of Oxford and Warren County. It shall be the responsibility of each of these bulk customer to notify its employees and customers.

**SECTION 2. DEFINITIONS:**

- (a) "Any Water," as the term is used in this agreement, shall mean any person using water, including fresh water, wastewater, or reclaimed water.
- (b) "Customer," as the term is used in this agreement, shall mean any person using water for any purpose from the Kerr Lake Regional Water Supply System and for which either a regular charge is made or, in this case of bulk sales, a cash charge is made at the site of delivery.
- (c) "Emergency," as the term is used in this agreement, shall mean that water supplies are below the level necessary, to meet normal needs and that serious shortages exist in the area.
- (d) "Excess Use," as the term is used in this agreement, shall mean the usage of water by a water customer in excess of water allotment provided under the water rationing provisions of this agreement for that customer, over any applicable period.
- (e) "Fresh Water," as the term is used in this agreement, shall mean water withdrawn from surface or groundwater that has not been previously used.
- (f) "Mandatory Conservation," as the term is used in this agreement, shall mean that raw water supplies reservoir levels are consistently below seasonal averages, and if they continue to decline, may not to be adequate to meet normal needs.
- (g) "Rationing," as the term is used in this agreement, shall mean procedures established to provide for the equitable distribution of critically-limited water supplies, in order to balance demand and limited available supplies, and to assure that sufficient water is available to preserve public health and safety.

Water Shortage Response Agreement  
Kerr Lake Regional Water System

- (h) “Voluntary Conservation,” as the term is used in this agreement, shall mean that conditions exist which indicate the potential for serious water supply shortages.
- (i) “Waste of Water,” as the term is used in this agreement, includes, but is not limited to (1) permitting water to escape down a gutter, ditch, or other surface drain, or (2) failure to repair a controllable leak of water due to defective plumbing.
- (j) “Water,” as the term is used in this agreement, shall mean water available to the City of Henderson, the City of Oxford and Warren County from the Kerr Lake Regional Water System by virtue of its contract, for introduction into their respective water distribution systems, including water offered for sale.
- (k) “Water Use Classes,” as the term used in this agreement, shall be established as follows:

CLASS 1 ESSENTIAL WATER USES:

Domestic Use:

- Water necessary to sustain human life and the lives of domestic pets, and to maintain minimum standards of hygiene and sanitation.

Health Care Facilities:

- Fire Hydrants
  1. Firefighting.
  2. Certain testing and drills by the fire department if performed in the interest of public safety and if approved by the municipal governing body.
- Flushing of Sewers and Hydrants: As needed to ensure public health and safety and if approved by the governing body.

Water Shortage Response Agreement  
Kerr Lake Regional Water System

CLASS 2 SOCIALLY OR ECONOMICALLY IMPORTANT USES OF WATER:

All Domestic Uses Other Than Those Included in Classes 1 and 3:

- Home water use including kitchen, bathroom and laundry use.
- Minimal watering of vegetable gardens.
- Watering of trees where necessary to preserve them.

Commercial, Agricultural, Industrial and Institutional Uses

- Outdoor commercial watering (public or private) using conservation measures and to the extent that sources of water other than fresh water are not available to use.
- Irrigation for commercial vegetable gardens and fruit orchards or the maintenance of livestock.
- Watering by commercial nurseries at a minimum level necessary to maintain stock.
- Water use by arboretums and public gardens of national, State, or regional significance where necessary to preserve specimens.
- Use of fresh water at minimum rate necessary to implement vegetation following earth moving, where such vegetation is required by law or regulation.
- Watering of golf course greens.
- Filling and Operation of Swimming Pools:
  1. Residential pools which serve more than 25 dwelling units.
  2. Pools used by health care facilities for patient care and rehabilitation.
  3. Municipal pools.
- Commercial car and truck washes.
- Commercial Laundromats.
- Restaurants, clubs, and Eating Places.
- Air Conditioning:
  1. Refilling for start up at the beginning of the cooling season.
  2. Make-up of water during the cooling season.
  3. Refilling specifically approved by health officials and the municipal governing body, where the system has been drained for health protection or repair purposes.
- Schools, Churches, Motels/Hotels and Similar Commercial Establishments.

Water Shortage Response Agreement  
Kerr Lake Regional Water System

CLASS 3 NON-ESSENTIAL USES OF WATER:

Ornamental Purposes:

- Fountains, reflecting pools, and artificial waterfalls.

Outdoor Non-Commercial Watering (public or private):

- Gardens, lawns, parks, golf course (except greens), playing fields and other recreational areas.
- Filling and operation of recreational swimming pools which serve fewer than 25 dwellings.
- Non-commercial washing of motor vehicles.
- Serving water in restaurants, clubs, or eating places except by specific request.
- Air Conditioning: refilling cooling towers after draining except as specified in Class 1.

**SECTION 3 DECLARATION OF VOLUNTARY CONSERVATION:**

Whenever the governing body of the Kerr Lake Regional Water System, finds the water level in Kerr Lake is nearing elevation 294, it shall declare that Voluntary Conservation conditions exist, and that the Director of the Kerr Lake Regional Water System shall, on a daily basis, monitor the lake level and the water use demand.

In addition, the Kerr Lake Regional Water System shall call upon its bulk customers to employ voluntary water conservation measures within 48 hours of receiving notice (see Addendum) to limit water use (especially Class 3 uses) and eliminate the waste of water. It shall be the responsibility of each of the bulk customers to employ voluntary water conservation measures on their water customers. The goal for water reduction shall be 5%.

**SECTION 4. DECLARATION OF MANDATORY CONSERVATION:**

Whenever the governing body of the Kerr Lake Regional Water System finds the water level in Kerr Lake is nearing elevation 289, it shall declare that Mandatory Conservation conditions exist. This implies that lake level is nearing a level where insufficient water can enter the raw water intake.

The Kerr Lake Regional Water System shall continue to encourage voluntary water conservation measures for the bulk customers of the Kerr Lake Regional Water System as defined under the Voluntary Conservation declaration, and shall further require mandatory measures be put in place, such as a ban be imposed on all Class 3 uses for the duration of the shortage. The goal for water reduction shall be 10%. Official notice shall be given to the City of Henderson, the City of Oxford, and Warren County.

Water Shortage Response Agreement  
Kerr Lake Regional Water System

**SECTION 5. DECLARATION OF A WATER SHORTAGE EMERGENCY:**

Whenever the governing body of the Kerr Lake Regional Water System finds that water level in Kerr Lake has dropped to elevation 284 or below, and/or that a serious shortage exists due to other reasons it shall declare that a water shortage Emergency exists. It would be the recommendation of the Regional Water System that the City of Henderson, the City of Oxford and Warren County identify all Class 1, Essential Uses, in specific, and make them targets for voluntary conservation initiatives.

The Kerr Lake Regional Water System shall require mandatory measures be put in place, such as a ban be imposed on all Class 2 and Class 3 uses for the duration of the shortage. The goal for water reduction shall be 40%. These restrictions should be continued until the emergency is declared ended.

Official notice shall be given to the City of Henderson, the City of Oxford and Warren County of the emergency situation. It shall be the responsibility of each separate bulk water user, the City of Henderson, the City of Oxford and Warren County, to employ water restrictions on their water customers.

**SECTION 6. DECLARATION OF RATIONING:**

Whenever the governing body of the Kerr Lake Regional Water System finds that water level in Kerr Lake has dropped to elevation 280, declared a Water Shortage Emergency, and finds a need to provide for the equitable distribution of critically-limited water supplies, in order to balance demand on limited available supplies, and to assure that sufficient water is available to preserve public health and safety, it shall call for mandatory rationing by all three (3) of the members and their water users until the emergency is declared ended.

It shall be the responsibility of each of the three (3) members to employ water restrictions on their water customers.

During this emergency situation, the amount of water to each member could be reduced by fifty percent (50%) or more. This amount shall be determined by the governing body of the Kerr Lake Regional Water System. Official notice shall be given to the City of Henderson, City of Oxford and Warren County.

**SECTION 6A. OBJECTIVES OF RATIONING:**

It is imperative that water customers achieve an immediate further reduction in water use in order to extend existing water supplies and at the same time, assure that sufficient water is available to preserve the public health and sanitation and to provide fire protection service.

Hospitals and health care facilities should comply with all restriction imposed on residential and non-residential water customers as may be applicable to each individual institution, to the extent compliance will not endanger the health of the patients or residents of the institution.

Water Shortage Response Agreement  
Kerr Lake Regional Water System

**SECTION 6B. ENFORCEMENT OF WATER RATIONING**

Each of three (3) members has primary responsibility for monitoring of compliance with the water-rationing measures. There are no enforcement provisions associated with this agreement.

**SECTION 7. ENFORCEMENT**

In order to effectuate compliance with this plan, enforcement of water conservation restrictions shall be the responsibility of each of the three (3) bulk customers. Each customer shall employ measures not limited to written notices, administrative and civil penalties, and service disruption.

**SECTION 8. VARIANCE PROTOCOL**

Kerr Lake Regional Water System understands that water restrictions can cause economic hardships on certain portions of their water customers: additionally, the restriction could be infeasible for others that have implemented water use reduction strategies into their daily practices prior to drought conditions being in place. Each of the three (3) bulk customers has the authority to consider variances for those showing proof of economic hardship, public health care facilities, or those that have previously implemented and documented water use reduction strategies such that achieving further water reduction goals may not be achievable. Each of the three (3) bulk customer shall adopt a protocol for accepting and ruling on a variance request. A copy of each variance request and decisions shall be forwarded to the governing body of the Kerr Lake Regional water System for record keeping.

**SECTION 9. EFFECTIVENESS**

The effectiveness of the Kerr Lake Regional Water System WSRP will be determined by comparing the stated water conservation goals with observed water use reduction data for each of the three (3) bulk customers. Data will be compared against the previous non-water restrictions year's data to determine effectiveness of its actions. Tracking will be conducted using a spreadsheet, updated monthly, which compares water use against the baseline time period seasonal data. Other factors to be considered include use of a shortage water rate structure, frequency of plan activation, notification procedures, any problem periods without activation, and total number of enforcement actions.

**SECTION 10. REVISION PROTOCOL**

This WSRP will be reviewed and revised as needed to adapt to new circumstances affecting water supply and demand, following implementation of emergency restrictions, and at a minimum of every five years in conjunction with the update in of the Local Water Supply Plans of each of the three (3) bulk customers. Further, the governing body of the Kerr Lake Regional Water System will review procedures following each emergency or rationing stage to recommend any necessary improvements to the plan. Each of the three (3) bulk customers shall also conduct a review of their plan and actions on this cycle and provide comments or suggestions to the Kerr Lake Regional Water System. If revisions are not recommended following a review, a memo will be filed documenting the effectiveness of the WSRP. The governing body of the Kerr Lake Regional Water System is responsible for initiating all subsequent revisions.

Water Shortage Response Agreement  
Kerr Lake Regional Water System

**SECTION 11. EFFECTIVE DATE**

This agreement shall take effect immediately upon adoption or passage by the governing body of the Kerr Lake Regional Water System.

**SECTION 12. EFFECTIVE PERIOD**

This agreement will remain in effect until terminated by action of the governing body of the Kerr Lake Regional Water System.

**CITY OF HENDERSON**

Date

---

James D. O'Geary, Mayor

**CITY OF OXFORD**

Date

---

Alvin Woodlief, Jr., Mayor

**WARREN COUNTY**

Date

---

Barry Richardson, Chairman

KERR LAKE REGIONAL WATER SYSTEM  
WATER SHORTAGE RESPONSE AGREEMENT

CONSERVATION MEASURES

Direct users to adopt the following conservation measures:

INDOOR RESIDENTIAL USE:

CONSERVATION FOR VOLUNTARY AND MANDATORY CONSERVATION PHASES:

- Use dishwashers only when they are full. Washing dishes by hand (don't let the tap run!) Saves about 25 gallons.
- Adjust water level on clothes washing machines, if possible. Use full load only, if not adjustable.
- Turn off faucets while brushing teeth, etc. Saves about 5 gallons per day.
- Reduce water used per flush by installing toilet tank displacement inserts. A plastic jug may often be used as an alternative. DO NOT USE BRICKS – they disintegrate when soaked and the resulting grit hinders closing of the flap valve.
- Do not use the toilet as a trash can.
- Use sink and tub stoppers to avoid wasting water.
- Keep a bottle of chilled water in the refrigerator for drinking.
- Find and fix leaks in faucets and water-using appliances. Faucets can usually be fixed cheaply and quickly by replacing washers.
- Adapt plumbing with flow restricting or other water-saving devices. These are usually inexpensive and easy to install. See attached list of devices. (Need list.)
- Learn to read your water meter so you can judge how much water you use and what difference conservation makes.
- Take shorter showers and shallow baths. Saves about 25 gallons.
- Reduce the number of toilet flushes per day. Each flush uses about 5 gallons (2-3 if you have water saving toilets).
- Don't use a garbage disposal.
- Use non-phosphate detergent and save laundry water for lawns and plants.

Water Shortage Response Agreement  
Kerr Lake Regional Water System

CONSERVATION FOR EMERGENCY CONSERVATION OR RATIONING PHASE (In addition to measures listed above).

- Turn off shower while soaping up.
- Use disposable eating utensils.

OUTDOOR RESIDENTIAL USE

CONSERVATION FOR NORMAL CONDITIONS AND VOLUNTARY CONSERVATION PHASE:

Lawns:

- Water before 10:00 a.m. to prevent evaporation that occurs during the hottest part of the day. Morning is better than evening, when the dampness encourages growth of fungus.
- Water only when lawn shows signs of wilt. Grass that springs back when stepped on does not need water.
- Water thoroughly, not frequently: long enough to soak roots. A light sprinkling evaporates quickly and encourages shallow root systems. Water slowly to avoid runoff.
- Don't let the sprinkler run any longer than necessary. In an hour, 600 gallons can be wasted.
- Allow maximum of one inch of water per week on your lawn. To measure, place cake tins outside to collect rain and water from sprinklers.
- Use pistol-grip nozzles on hoses to avoid waste when watering flowers and shrubs.
- Aerate lawns by punching holes 6 inches apart. This allows water to reach roots rather than run off surfaces.
- Position sprinklers to water the lawn, not the pavement.
- Avoid watering on windy days when the wind not only blows water off target, but also causes excess evaporation.
- Keep sprinkler heads clean to prevent uneven watering.
- Adjust hose to simulate gentle rain. Sprinklers that produce a fine mist waste water through evaporation.
- Know how to turn off an automatic sprinkler system in case of rain.
- Use an alarm clock or stove timer to remind you to shut off sprinklers that don't have timers.

Water Shortage Response Agreement  
Kerr Lake Regional Water System

Vegetables and Flower Gardens:

- Water deeply, slowly and weekly. Most vegetables require moisture to a depth of 6 to 8 inches.
- Keep soil loose so water can penetrate easily.
- Keep weeds out to reduce competition for water.
- Put the water where you want it and avoid evaporation by using soil-soakers or slow running hoses, not sprinklers.

Trees and Shrubs:

- Water deeply using a soil-soaker or drip-irrigation.
- Water only when needed. Check the depth of soil dryness by digging with a trowel.
- Mulch to reduce evaporation. A 2" to 3" layer of wood chips, pine needles, grass clippings, or straw keeps the soil cool in summer.
- Dig troughs around plants to catch and retain water.
- Water trees growing in full sun more often than those in shade.
- Do not use sprinklers. Apply water directly at base.
- Do not fertilize during the summer. Fertilizing increases a plant's need for water.
- Postpone planting until fall or spring when there is generally less need for water.
- Install trickle-drip irrigation systems close to the roots of your plants. By dripping water slowly, the system doesn't spray water in to the air. Use soil probes for large trees.
- Water when cloudy, at night, or even when a light rain is falling.

OUTDOOR RESIDENTIAL USE CONSERVATION FOR VOLUNTARY CONSERVATION PHASE  
(in addition to measures listed above).

- Do not allow children to play with hose or sprinklers.
- Limit car washing.
- Be ready to catch rainfall that occurs. Place containers under drain sprouts.
- Use leftover household water if available.
- Consider delaying the seeding or sodding of new lawns.
- Determine the amount of water being used outdoors by comparing water bills for summer and winter.

Water Shortage Response Agreement  
Kerr Lake Regional Water System

CONSERVATION FOR MANDATORY CONSERVATION PHASE (In addition to measures listed above).

- Vegetable gardens and food trees should be given minimal amounts of water on an individual basis only.
- Do not water lawns and inedible plants.
- Do not use sprinklers.

*Most outdoor watering is prohibited under Emergency Conservation conditions.*

HOSPITAL AND HEALTH CARE FACILITY USE:

- Reduce laundry usage or services by changing the linens, etc. only when necessary to preserve the health of patients or residents.
- Use disposable food service items.
- Eliminate, postpone, or reduce, as they may be appropriate, elective surgical procedures during the period of emergency.

INDUSTRIAL USE

- Identify and repair all leaky fixtures and water-using equipment. Give special attention to equipment connected directly to waterlines, such as processing machines, steam-using machines, washing machines, water-cooled air conditioners, and furnaces.
- Assure that valves and solenoids that control water flows are shut off completely when the water-using cycle is not engaged.
- Adjust water-using equipment to use the minimum amount of water required to achieve its stated purpose.
- Shorten rinse cycles for laundry machines as much as possible; implement lower water levels wherever possible.
- For processing, cooling, and other uses, either re-use water or use water from sources that would not adversely affect public water supplies.
- Advise employees, students, patients, customers, and other users not to flush toilets after every use. Install toilet tank displacement inserts; place flow restrictors in showerheads and faucets; close down automatic flushes overnight.
- Install automatic flushing valves to use as little water as possible or to cycle at longer intervals.
- Place water-saving posters and literature where employees, students, patients, customers', etc. will have access to them.
- Check meters on a frequent basis to determine consumptive patterns.
- Review usage patterns to see where other savings can be made.

City of Oxford

This page has been intentionally left blank.

RECEIVED

SEP 18 2007

DIVISION OF WATER RESOURCES



# CITY OF OXFORD, NORTH CAROLINA

STATE OF NORTH CAROLINA  
COUNTY OF GRANVILLE  
CITY OF OXFORD

I, Tanya S. Weary, City Clerk for the City of Oxford, do hereby certify that the attached is a true and accurate copy of the City of Oxford Water Shortage Response Policy, which was approved by the Oxford Board of Commissioners at the Regular Session meeting held on the 11th day of September, 2007.

In witness whereof I have hereunto set my hand and have caused the official seal of the City of Oxford to be affixed this 12th day of September, 2007.

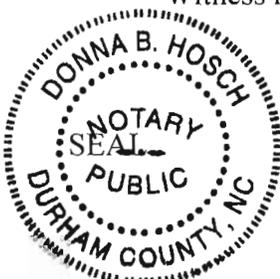


Tanya S. Weary  
City Clerk

STATE OF NORTH CAROLINA  
COUNTY OF DURHAM

I, Donna B. Hosch, a Notary Public in and for the State of North Carolina, do hereby certify that Tanya S. Weary personally appeared before me this date and acknowledged the due execution of the foregoing certification for the purpose therein expressed.

Witness my hand and seal this 12th day of September, 2007.



Notary Public

My commission expires 04-18-09



# CITY OF OXFORD WATER SHORTAGE RESPONSE POLICY

A policy authorizing the declaration of water shortage, establishing procedures and measures for the conservation of water resources, and prescribing penalties by the governing body of the City of Oxford

---

## **Section 1. Purpose**

The purpose of this policy is to define the City's availability of water; authorize the declaration of a water shortage; establish procedures and measures for the conservation of water resources; and prescribe penalties for failure to conserve water.

## **Section 2. Definitions**

- (a) "Allotment" as the term is used in this policy shall mean the maximum quantity of water allowed for each customer over any applicable period as established in the water rationing provisions of this policy.
- (b) "Customer" as the term is used in this policy shall mean any person using water for any purpose from the City of Oxford's water distribution system and for which a regular charge is made.
- (c) "Emergency" as the term is used in this policy shall mean that water supplies are below the level necessary to meet normal need and that serious shortages exist in the area.
- (d) "Excess Use" as the term is used in this policy shall mean the usage of water by the water customer in excess of the water allotment provided under the water rationing provision of this policy for that customer over any applicable period.
- (e) "Mandatory Conservation" as the term is used in this policy shall mean that raw water supplies are consistently below seasonal averages; and if they continue to decline, may not be adequate to meet normal needs.
- (f) "Non-Residential Customer" as the term is used in this policy shall mean commercial, industrial, institutional, public, and all other such users with the exception of hospital and health care facilities.
- (g) "Rationing" as the term is used in this policy shall mean procedures established to provide for the equitable distribution of critically limited water supplies in order to balance demand and limited available supplies and to assure that sufficient water is available to preserve public health and safety.

- (h) "Residential Customer" as the term is used in this policy shall mean any customer who receives water service for a single- or multi-family dwelling unit. The term residential customer does not include educational or other institutions, hotels, motels, or similar commercial establishments.
- (i) "Voluntary Conservation" as the term is used in this policy shall mean that conditions exist which indicate the potential for serious water supply shortages.
- (j) "Water" as the term is used in this policy shall mean water available to the City of Oxford from the Kerr Lake Regional Water System by virtue of its water rights or contract or any treated water introduced by the City of Oxford into its water distribution system and offered for sale.
- (k) "Water Use Classes" as the term is used in this policy shall be established as follows:

- Class 1 - Essential

Domestic Use – water necessary to sustain human life and the lives of domestic pets and maintain minimum standards of hygiene and sanitation.

Health Care Facilities – patient care and rehabilitation.

Public Use – fire hydrants for firefighting. Flushing of sanitary sewer and fire hydrants to ensure public health and safety.

- Class 2 - Important Uses

- home use
- minimal hand watering of vegetable gardens
- irrigation for commercial vegetable gardens and fruit orchards or the maintenance of livestock
- watering by commercial nurseries at a minimum level necessary to maintain stock.
- use of water at a minimum rate necessary to implement vegetation following earth moving, where such vegetation is required by law or regulation
- watering of golf course greens
- municipal and commercial pools
- commercial car and truck washes
- commercial laundromats
- restaurants, clubs, and eating-places
- air conditioning: refilling and make-up water during the cooling season
- schools, churches, motels/hotels, and similar commercial establishments

- Class 3 - Non-Essential Uses

Ornamental purposes – fountains, reflecting pools, and artificial waterfalls.

Outdoor Non-Commercial Watering (public or private) – lawns, golf courses except greens. Non-commercial washing of motor vehicles.

Public Use – fire hydrants except as listed in Class 1.

### **Section 3. Declaration of Voluntary Conservation**

Whenever the governing body of the City of Oxford is notified by the Kerr Lake Regional Water System (KLR) that a potential shortage of water supply is indicated, the City shall be empowered to declare that voluntary conservation conditions exist. The Director of the Kerr Lake Regional Water System shall, on a daily basis, monitor the supply and demand upon that supply and notify the City Engineer of the City of Oxford or his designated representative of same.

In addition, the Mayor or his/her agent is authorized to call upon all water customers to employ voluntary water conservation measures to limit water use especially non-essential use. This announcement shall be published in a newspaper of general circulation in the area which qualifies under GS 1-597 and publicized through the general news media or any other appropriate method for making such announcements public.

### **Section 4. Declaration of Mandatory Conservation**

Whenever the governing body of the City of Oxford is notified by KLR that the raw water supply (i.e., reservoir level) to be consistently below seasonal average, and if they continue to decline may not be adequate to meet normal needs, the City shall be empowered to declare that mandatory conservation conditions exist. The City of Oxford shall continue to encourage voluntary water conservation measures and further shall impose a ban on all Class 3 Non-Essential water uses for the duration of the shortage.

### **Section 5. Declaration of a Water Shortage Emergency**

Whenever the governing body of the City of Oxford is notified by KLR that the raw water supply is below the level necessary to meet normal need and that serious shortages exist, it shall be empowered to declare that a water shortage emergency exists. Class 1 Essential Uses shall be identified in specific as targets for voluntary conservation initiatives. Also, all Class 2 Important Uses shall be reduced by levels determined by the governing body. Class 3 Non-Essential Uses will remain banned. These restrictions shall continue until the emergency is declared ended by the governing body.

### **Section 6. Declaration of Rationing**

Whenever the governing body of the City of Oxford has declared a water shortage emergency and finds a need to provide for the equitable distribution of critically limited

water supplies in order to balance demand of limited supplies and to assure that sufficient water is available to preserve public health and safety, it shall be empowered to provide for mandatory rationing.

#### Section 6A - Objectives of Rationing

A policy that provides for mandatory rationing shall state findings that:

- (a) It is imperative that all water customers achieve an immediate further reduction in water use in order to extend existing water supplies and at the same time assure that sufficient water is available to preserve the public health and sanitation and to provide for fire protection.
- (b) The plan provides for equitable reduction in water usage and for equal sacrifice on the part of each water customer. The success of this policy depends upon the cooperation of all water customers in this emergency situation.

#### Section 6B - Water Use Rationing for Residential Users

##### (a) Metered Residential Customers and Allotments

1. Each dwelling unit (household) shall be allotted 4000 gallons per month.
2. Residential water customers will be required to provide the City of Oxford and utility personnel with reasonable access to read meters as necessary to this rationing declaration. Where access is not readily available, all reasonable efforts to contact customers in order to arrange for access to read meters shall be made.
3. If it is found that the residential water allotment provided under this section would create an extraordinary hardship for individual customers, as in the case of special health-related requirements, a revised allotment for that particular customer may be established. Any person aggrieved by a decision relating to such an exemption or variance may file a complaint with the City Manager in accordance with the City of Oxford's normal administrative procedures.

##### (b) Suggested Conservation Measures:

###### 1. Indoor Residential Use

###### Conservation for Voluntary and Mandatory Conservation Phases

- Use dishwashers only when they are full
- Use full loads only in washing machines
- Turn off faucets while brushing teeth, etc. Do not use the toilet as a trash can.
- Use sink and tub stoppers to avoid wasting water
- Keep a bottle of chilled water in the refrigerator for drinking
- Find and fix leaks in faucets and water-using appliances
- Adapt plumbing with flow restricting or other water-saving devices

- Learn to read your water meter so you can judge how much water you use and what a difference conservation makes
- Take shorter showers and shallow baths
- Reduce the number of toilet flushes per day
- Don't use a garbage disposal
- Use laundry water for watering lawns and plants
- Turn off shower while soaping up
- Use disposable eating utensils

## 2. Outdoor Residential Use

### (a) Conservation for Normal Conditions

#### Lawns

- Water before 10:00 a.m. to prevent evaporation that occurs during the hottest part of the day. Morning is better than evening, since dampness encourages growth of fungus.
- Water only when lawn shows signs of wilt. Grass that springs back when stepped on does not need water.
- Water thoroughly, not frequently; long enough to soak roots. A light sprinkling evaporates quickly and encourages shallow root systems. Water slowly to avoid runoff.
- Don't let the sprinkler run any longer than necessary. In an hour, 600 gallons can be wasted.
- Allow maximum of one inch of water per week on your lawn. To measure, place cake tins outside to collect rain and water from sprinklers.
- Use pistol-grip nozzles on hoses to avoid waste when watering flowers and shrubs.
- Aerate lawns by punching holes 6 inches apart. This allows water to reach roots rather than run off surfaces.
- Position sprinklers to water the lawn, not the pavement.
- Avoid watering on windy days when the wind not only blows water off target, but also causes excess evaporation.
- Keep sprinkler heads clean to prevent uneven watering.
- Adjust sprinkler heads to simulate a gentle rain. Sprinklers that produce a fine mist waste water through evaporation.
- Know how to turn off an automatic sprinkler system in case of rain.
- Use an alarm clock or stove timer to remind you to shut off sprinklers that don't have timers.

#### Vegetables and Flower Gardens

- Water deeply, slowly, and weekly. Most vegetables require moisture to a depth of 6 to 8 inches.
- Keep soil loose so water can penetrate easily.
- Keep weeds out to reduce competition for water.
- Put the water where you want it and avoid evaporation by using soil soakers or slow running hoses, not sprinklers.

### Trees and Shrubs

- Water deeply using a soil soaker or drip irrigation.
- Water only when needed. Check the depth of soil dryness by digging with a trowel.
- Mulch to reduce evaporation. A 2" to 3" layer of wood chips, pine needles, grass clippings, or straw keeps the soil cool in summer.
- Dig troughs around plants to catch and retain water.
- Water trees growing in full sun more often than those in shade. Apply water directly at base.
- Do not fertilize during the summer. Fertilizing increases a plant's need for water.
- Postpone planting until fall or spring when there is generally less need for water.
- Install trickle-drip irrigation systems close to the roots of your plants. By dripping water slowly, the system doesn't spray water into the air. Use soil probes for large trees.
- Water when cloudy, at night, or even when a light rain is falling.

(b) Conservation for Voluntary Conservation Phase (in addition to measures listed above)

- Do not allow children to play with hose or sprinklers.
- Limit car washing.
- Be ready to catch rainfall that occurs. Place containers under drain sprouts.
- Use leftover household water, if available.
- Consider delaying the seeding or sodding of new lawns.

(c) Conservation for Mandatory Conservation Phase (in addition to measures listed above)

- Vegetable gardens and food trees should be given minimal amounts of water on an individual basis only.
- Do not water lawns and inedible plants.
- Do not use sprinklers.

**Most outdoor watering is prohibited under Emergency Conservation conditions.**

### Section 6C - Water Use Rationing for Non-Residential Water Users

- (a) Non-residential customers include commercial, industrial, public, and all other such users with the exception of hospitals and health care facilities.
- (b) Non-residential water customers shall further reduce their water usage to 50 percent of use levels during the last metered recording.
- (c) It is the primary responsibility of each non-residential water customer to meet the mandated water use reduction goal in whatever manner possible including limiting hours or days of operation, if necessary.

- (d) Each non-residential water user shall provide access to City personnel for the purpose of meter reading and monitoring of compliance with this policy. All reasonable efforts will be made to contact customers to arrange for access.
- (e) If the mandated further reduction in water usage cannot be obtained without imposing extraordinary hardship which threatens health and safety, the non-residential customer may apply to the City of Oxford for a variance. For these purposes, "extraordinary hardship" means a permanent damage to property or an economic loss which is substantially more severe than the sacrifices borne by other water users subject to this water rationing policy. If the further reduction would cause an extraordinary hardship or threaten health or safety, a variance may be granted by the City Manager and a revised water use reduction requirement for the particular customer may be established.
- (f) Any person aggrieved by a decision relating to such a variance may file a complaint with the City Board in accordance with established procedures.
- (g) The City of Oxford will provide each non-residential customer with the following suggested means to reduce usage levels:
- Identify and repair all leaky fixtures and water-using equipment. Give special attention to equipment connected directly to waterlines, such as processing machines, steam-using machines, washing machines, water-cooled air conditioners, and furnaces.
  - Assure that valves and solenoids that control water flows are shut off completely when the water-using cycle is not engaged.
  - Adjust water-using equipment to use the minimum amount of water required to achieve its stated purpose.
  - Shorten rinse cycles for laundry machines as much as possible; implement lower water levels wherever possible.
  - For processing, cooling, and other uses, either re-use water or use water from sources that would not adversely affect public water supplies.
  - Advise employees, students, patients, customers, and other users not to flush toilets after every use. Install flow restrictors in showerheads and faucets.
  - Install automatic flushing valves to use as little water as possible or to cycle at longer intervals.
  - Place water-saving posters and literature where employees, students, patients, customers, etc. will have access to them.
  - Check meters on a frequent basis to determine consumptive patterns.
  - Review usage patterns to see where other savings can be made.

#### Section 6D - Water Use Rationing for Hospitals and Health Care Facilities

- (a) Each hospital or health care facility shall survey its water usage patterns and requirements and implement such additional conservation measures as may be possible without endangering the health of its patients or residents to achieve a further reduction in the institution's water usage.

- (b) The City of Oxford will provide each hospital and health care facility with the following suggested means to reduce usage levels:
- Reduce laundry usage or services by changing linens, etc. only when necessary to preserve the health of patients or residents.
  - Use disposable food service items.
  - Eliminate, postpone, or reduce, as may be appropriate, elective surgical procedures during the period of emergency.

#### Section 6E - Enforcement of Water Rationing

- (a) The City of Oxford's Water and Sewer Department will have primary responsibility for monitoring compliance with the water rationing policy.
- (b) The following provision shall govern the implementation of temporary service interruption: in order to effectuate compliance with this policy, the City of Oxford is hereby authorized and required to plan and implement temporary service interruption to lawn sprinkler systems.
- (c) Any residential or non-residential water customer who exceeds the allotments established pursuant to this water rationing will be subject to the following excess-use penalties:
1. "Excess-use penalties" will be collected when the customer's use exceeds the water allotments established pursuant to the local water rationing declaration computed in accordance with the following schedule:  
  
Excessive use \$25 for first infraction, \$50 for each subsequent infraction.
  2. Any monies collected through excess-use penalties shall not be accounted for as income but shall be placed in a reserve account that is dedicated to addressing water shortage problems and water conservation initiatives.
- (d) In addition to the excess-use penalty, non-compliance with the water rationing provisions of this policy will result in the following:
1. For the first excess use, a warning of possible discontinuation shall be issued to the customer.
  2. For the second or subsequent excess use, service to the customer may be interrupted. Before service to an individual may be terminated under this provision, actual notice of the intent to discontinue shall be given which shall include notice that the customer may appear at a designated time and place (within 24 hours) for an informal hearing to show cause why service should not be discontinued.
- (e) Meter reading schedules are authorized to be altered to assure adequate monitoring of compliance with this policy.

(f) Any customer or other person aggrieved by a decision or action imposing an excess-use penalty or other remedy for non-compliance with the requirements of the policy may proceed in accordance with the following provisions:

- The City of Oxford shall adopt procedures that provide an opportunity for the customer or aggrieved party to rebut the finding of a violation or to provide evidence of circumstances beyond the customer's control that resulted in the violation. A record of evidence regarding disputed violations shall be kept and a written notice of the City of Oxford's final decision and action in such cases shall be provided to the customer or aggrieved party.

## **Section 7. Regulations**

Any person who violates the provisions of this policy or who fails to carry out the duties and responsibilities imposed by this policy or who impedes or interferes with any action undertaken or ordered pursuant to this policy shall be subject to the following

(a) If the Mayor, City Manager, Director of Public Works, or other City official or officials charged with implementation and enforcement of this policy or a water supply shortage resolution learns of any violation of any water use restriction imposed pursuant this policy, a written notice of the record shall be affixed to the property where the violation occurred and mailed to the customer and to any other person known to the City of Oxford who is responsible for the violation or its correction. Said notice shall describe the violation and order that is to be corrected, cured, or abated immediately or within such specified time as the City of Oxford determines is reasonable under the circumstances. If the order is not complied with, the City of Oxford may terminate water service to the customer subject to the following procedures:

1. The City of Oxford shall give the customer notice by mail that due to the violation, water services will be discontinued within a specified time and that the customer will have the opportunity to appeal the termination by requesting a hearing scheduled before the City of Oxford governing body or a Municipal official designated as hearing officer by the governing body;
2. If such hearing is requested by the customer charged with the violation, he or she shall be given a full opportunity to be heard before termination is ordered; and,
3. The governing body or hearing officer shall make findings of fact and order whether service should continue or be terminated.

(b) A fee of \$50 shall be paid for the reconnection of any water service terminated pursuant to subsection

**Section 8. Severability**

If any provision of this policy is declared unconstitutional or the application thereof to any person or circumstance is held invalid, the constitutionality of the remainder of the policy and its applicability to other persons and circumstances shall not be affected thereby.

**Section 9. Effective Date**

This policy shall take effect immediately upon adoption by the City of Oxford's governing board.

**Section 10. Effective Period**

This policy shall remain in effect until terminated by action of the City of Oxford's governing body.

Passed by the Oxford City Commissioners this 11<sup>th</sup> day of September 2007.

CITY of OXFORD

ATTEST:

Tanya S. Weary

Tanya S. Weary, CMC  
City Clerk

Alvin Woodlief, Jr.  
Alvin Woodlief, Jr.  
Mayor



This page has been intentionally left blank.

# South Granville Water and Sewer Authority

This page has been intentionally left blank.

**Water Shortage Response Plan Ordinance**  
**South Granville Water And Sewer Authority, North Carolina**  
**Originally Adopted January 8, 2008**  
**Modified This August 10, 2010**

AN ORDINANCE OF THE BOARD OF THE SOUTH GRANVILLE WATER AND SEWER AUTHORITY (SGWASA), NORTH CAROLINA

The SGWASA Board of Granville County, North Carolina, doth ordain the adoption of this ordinance which shall read as follows:

This ordinance shall rescind and supersede the SGWASA Water Shortage Ordinance adopted January 8, 2008.

The procedures herein are written to reduce potable water demand and supplement existing drinking water supplies whenever existing water supply sources are inadequate to meet current demands for potable water.

**I. Authorization**

The SGWASA Executive Director shall enact the following water shortage response provisions whenever the trigger conditions outlined in Section IV are met. In his or her absence, the Utility Director will assume this role.

Lindsay L. Mize  
SGWASA Executive Director  
Phone: (919) 575-4068  
E-mail: [lmize@sgwasa.org](mailto:lmize@sgwasa.org)

Mr. Fred Dancy  
SGWASA Utility Director  
Phone: (919) 575-4068  
E-mail: [fdancy@sgwasa.org](mailto:fdancy@sgwasa.org)

**II. Notification**

The following notification methods will be used to inform water system employees and customers of a water shortage declaration: employee e-mail announcements, notices at municipal buildings, notices in water bills and on the SGWASA website homepage ([www.sgwasa.org](http://www.sgwasa.org)). Required water shortage response measures will be communicated through PSA announcements on local radio and cable stations and on the SGWASA website. Declaration of emergency water restrictions or water rationing will be communicated to all customers by telephone.

**III. Levels of Response**

Five levels of water shortage response are outlined in the table below. The five levels of water shortage response are: voluntary reductions, mandatory reductions I

and II, emergency reductions and water rationing. A detailed description of each response level and corresponding water reduction measures follow below.

<b>Stage</b>	<b>Response</b>	<b>Description</b>
1	Voluntary Reductions	Water users are encouraged to reduce their water use and improve water use efficiency; however, no penalties apply for noncompliance. Water supply conditions indicate a potential for shortage.
2	Mandatory Reductions I	Water users must abide required water use reduction and efficiency measures; penalties apply for noncompliance. Water supply conditions are significantly lower than the seasonal norm and water shortage conditions are expected to persist.
3	Mandatory Reductions II	Same as in Stage 2
4	Emergency Reductions	Water supply conditions are substantially diminished and pose an imminent threat to human health or environmental integrity.
5	Water Rationing	Water supply conditions are substantially diminished and remaining supplies must be allocated to preserve human health and environmental integrity.

In Stage 1, Voluntary Reductions, all water users will be asked to reduce their normal water use by 5%. Customer education and outreach programs will encourage water conservation and efficiency measures including: irrigating landscapes a maximum of one inch per week; preventing water waste, runoff and watering impervious surfaces; watering plants deeply to encourage root growth; washing only full loads in clothes and dishwashers; using spring-loaded nozzles on garden hoses; and identifying and repairing all water leaks.

In Stage 2, Mandatory Reductions I, all customers are expected to reduce their water use by 10% in comparison to their previous month's water bill. In addition to continuing to encourage all voluntary reduction actions, the following restrictions apply: irrigation is limited to a half inch per week between 8PM and 8AM; outdoor use of drinking water for washing impervious surfaces is prohibited; and all testing and training purposes requiring drinking water (e.g. fire protection) will be limited.

In Stage 3, Mandatory Reductions II, customers must continue actions from all previous stages and further reduce water use by 20% compared to their previous month's water bill. All non-essential uses of drinking water are banned and garden and landscape irrigation must be reduced to the minimum amount necessary for survival. Additionally, in Stage 3, a drought surcharge of 1.5 times the normal water rate applies.

In Stage 4, Emergency Reductions, customers must continue all actions from previous stages and further reduce their water use by 25% compared to their previous month's water bill. A ban on all use of drinking water except to protect public health and safety is implemented and drought surcharges increase to 2 times the normal water rate.

The goal of Stage 5, Water Rationing, is to provide drinking water to protect public health (e.g. residences, residential health care facilities and correctional facilities). In Stage 5, all customers are only permitted to use water at the minimum required for public health protection. Firefighting is the only allowable outdoor water use and pickup locations for distributing potable water will be announced according to South Granville WSA's Emergency Response Plan. Drought surcharges increase to 5 times the normal water rate.

#### IV. Triggers

The SGWASA's water source is RD Holt reservoir. The following measurements of usable storage and intake levels trigger entry into corresponding water restriction stages.

<b>Stage</b>	<b>Usable Storage</b>	<b>Water Level</b>
1	< 60%	76 inches below full
2	< 50%	129 inches below full
3	< 40%	155 inches below full
4	< 30%	186 inches below full
5	< 0%	Water Below Top of Lower Intake

#### Return to Normal

When water shortage conditions have abated and the situation is returning to normal, water conservation measures employed during each phase should be decreased in reverse order of implementation. Permanent measures directed toward long-term monitoring and conservation should be implemented or continued so that the community will be in a better position to prevent shortages and respond to recurring water shortage conditions.

#### V. Enforcement

The provisions of the water shortage response plan will be enforced by SGWASA personnel. Violators may be reported to SGWASA's main office or any e-mail contact listed on SGWASA's website. Civil Penalties shall be assessed according to the following schedule depending on the number of prior violations and current level of water shortage.

South Granville WSA Water Shortage Response Plan Ordinance

<b>Water Shortage Level</b>	<b>First Violation</b>	<b>Second Violation</b>	<b>Third Violation</b>
Voluntary Reductions (Stage 1)	N/A	N/A	N/A
Mandatory Reductions (Stages 2 and 3)	Warning	\$250	Discontinuation of Service
Emergency Reductions (Stage 4)	\$250	Discontinuation of Service	Discontinuation of Service
Water Rationing (Stage 5)	\$500	Discontinuation of Service	Discontinuation of Service

Drought surcharge rates are effective in Stages 3, 4 and 5.

Each violation shall subject the offender to a civil penalty as set out above to be recovered by SGWASA in a civil action in the nature of debt if the offender does not pay the penalty within 30 days after the offender has been cited for violation of this Ordinance. Any person assessed a civil penalty under this Ordinance by SGWASA shall be notified of the assessment by registered or certified mail, and the notice shall specify the reasons for the assessment of the civil penalty. If the person assessed fails to pay the amount of the assessment to SGWASA within 30 days after receipt of such notice, SGWASA may institute a civil action in the General Court of Justice of Granville County to recover the amount of the assessment. The validity of SGWASA's action in assessing the violator may be appealed directly to the General Court of Justice of Granville County, or may be raised at any time in the action to recover the assessment. No failure to contest directly the validity of the authority's action in levying the assessment shall preclude the person assessed from later raising the issue of validity in any action to collect the assessment.

In addition, the provisions of this Ordinance may be enforced by any appropriate equitable remedy issuing from a court of competent jurisdiction. In such cases, the General Court of Justice shall have jurisdiction and authority to issue such orders as may be appropriate to enforce the ordinances of the authority, and it shall not be a defense to the application made by the authority therefor that there is an adequate remedy at law.

The provisions of this Ordinance may be enforced by any one, all or a combination of the remedies authorized by N.C. Gen. Stat. §162A-9.1..

Each day's continuing violation shall constitute and be a separate and distinct offense. Multiple offenses may be aggregated for the purposes of collection in the nature of a debt.

VI. Public Comment

Customers will have multiple opportunities to comment on the provisions of the water shortage response plan. First, a draft plan will be on file with the SGWASA Clerk for customers to view. A draft plan will be published on the SGWASA website. Also in accordance with G. 162A – 6 (a) (14c), the SGWASA Board will pass an intent to adopt in open session and then allow its represented agencies 60 days to comment on this ordinance and any future modifications. The Board is authorized to adopt this ordinance or any modification of this ordinance 60 days after passing the intent to adopt.

#### VII. Variance Protocols

Applications for water use variance requests are available from the SGWASA website and the SGWASA Office. All applications must be submitted to the SGWASA Office for review by the Executive Director or his or her designee. A decision to approve or deny individual variance requests will be determined within two weeks of submittal after careful consideration of the following criteria: impact on water demand, expected duration, alternative source options, social and economic importance, purpose (i.e. necessary use of drinking water) and the prevention of structural damage.

#### VIII. Effectiveness

The effectiveness of the SGWASA water shortage response plan ordinance will be determined by comparing the stated water conservation goals with observed water use reduction data. Other factors to be considered include frequency of plan activation, any problem periods without activation, total number of violation citations, desired reductions attained and evaluation of demand reductions compared to the previous year's seasonal data.

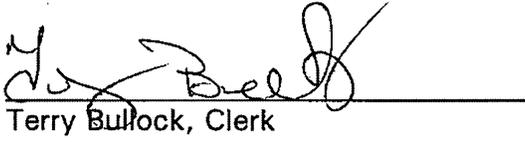
#### IX. Revision

The water shortage response plan ordinance will be reviewed and revised as needed to adapt to new circumstances affecting water supply and demand, following implementation of emergency restrictions, and at a minimum of every five years in conjunction with the updating of our Local Water Supply Plan. Further, a water shortage response planning work group will review procedures following each emergency or rationing stage to recommend any necessary improvements to the plan to SGWASA Board. The SGWASA Executive Director is responsible for initiating all subsequent revisions.

South Granville WSA Water Shortage Response Plan Ordinance

This ordinance adopted this 10<sup>th</sup> day of August 2010.

  
Ron Alligood, Chairman

  
Terry Bullock, Clerk

# Town of Stovall

This page has been intentionally left blank.

**Water Shortage Response Plan  
Town of Stovall, North Carolina  
May 10, 2010**

The procedures herein are written to reduce potable water demand and supplement existing drinking water supplies whenever existing water supply sources are inadequate to meet current demands for potable water.

**I. Authorization**

The Stovall Town Clerk shall enact the following water shortage response provisions whenever the trigger conditions outlined in Section IV are met. In her absence, the Public Works Director will assume this role.

Ms. Sandra Williford  
Stovall Town Clerk  
Phone: (919) 693-4646  
E-mail: scw4646@yahoo.com

Mr. Wayne Keeton  
Town of Stovall Public Works Director  
Phone: (919) 693-4646  
E-mail: scw4646@yahoo.com

**II. Notification**

The following notification methods will be used to inform water system employees and customers of a water shortage declaration: employee e-mail announcements, notices at municipal buildings, notices in water bills. Required water shortage response measures will be communicated through, PSA announcements on local radio and cable stations. Declaration of emergency water restrictions or water rationing will be communicated to all customers by telephone.

**III. Levels of Response**

Five levels of water shortage response are outlined in the table below. The five levels of water shortage response are: voluntary reductions, mandatory reductions I and II, emergency reductions and water rationing. A detailed description of each response level and corresponding water reduction measures follow below.

<b>Stage</b>	<b>Response</b>	<b>Description</b>
1	Voluntary Reductions	Water users are encouraged to reduce their water use and improve water use efficiency; however, no penalties apply for noncompliance. Water supply conditions indicate a potential for shortage.
2	Mandatory Reductions I	Water users must abide required water use reduction and efficiency measures; penalties apply for noncompliance. Water supply conditions are significantly lower than the seasonal norm and water shortage conditions are expected to persist.
3	Mandatory Reductions II	Same as in Stage 2
4	Emergency Reductions	Water supply conditions are substantially diminished and pose an imminent threat to human health or environmental integrity.
5	Water Rationing	Water supply conditions are substantially diminished and remaining supplies must be allocated to preserve human health and environmental integrity.

In Stage 1, Voluntary Reductions, all water users will be asked to reduce their normal water use by 5%. Customer education and outreach programs will encourage water conservation and efficiency measures including: irrigating landscapes a maximum of one inch per week; preventing water waste, runoff and watering impervious surfaces; watering plants deeply to encourage root growth; washing only full loads in clothes and dishwashers; using spring-loaded nozzles on garden hoses; and identifying and repairing all water leaks.

In Stage 2, Mandatory Reductions I, all customers are expected to reduce their water use by 10% in comparison to their previous month’s water bill. In addition to continuing to encourage all voluntary reduction actions, the following restrictions apply: irrigation is limited to a half inch per week between 8PM and 8AM; outdoor use of drinking water for washing impervious surfaces is prohibited; and all testing and training purposes requiring drinking water (e.g. fire protection) will be limited.

In Stage 3, Mandatory Reductions II, customers must continue actions from all previous stages and further reduce water use by 20% compared to their previous month’s water bill. All non-essential uses of drinking water are banned and garden and landscape irrigation must be reduced to the minimum amount necessary for survival. Additionally, in Stage 3, a drought surcharge of 1.5 times the normal water rate applies.

In Stage 4, Emergency Reductions, customers must continue all actions from previous stages and further reduce their water use by 25% compared to their previous month’s water bill. A ban on all use of drinking water except to protect public health and safety is implemented and drought surcharges increase to 2 times the normal water rate.

The goal of Stage 5, Water Rationing, is to provide drinking water to protect public health (e.g. residences, residential health care facilities and correctional facilities). In Stage 5, all customers are only permitted to use water at the minimum required for public health protection. Firefighting is the only allowable outdoor water use and pickup locations for distributing potable water will be announced according to Stovall’s Emergency Response Plan. Drought surcharges increase to 5 times the normal water rate.

IV. Triggers

Stovall is provided water solely by purchase from the City of Oxford. When the City of Oxford declares a water shortage Stovall is required to do so as well. During this time Stovall Public Works Director will stay in close contact with the City of Oxford and follow their triggers.

Return to Normal

When water shortage conditions have abated and the situation is returning to normal, water conservation measures employed during each phase should be decreased in reverse order of implementation. Permanent measures directed toward long-term monitoring and conservation should be implemented or continued so that the community will be in a better position to prevent shortages and respond to recurring water shortage conditions.

V. Enforcement

The provisions of the water shortage response plan will be enforced by Town of Stovall Public Works department and police personnel. Violators may be reported to the Town’s phone line. Citations are assessed according to the following schedule depending on the number of prior violations and current level of water shortage.

<b>Water Shortage Level</b>	<b>First Violation</b>	<b>Second Violation</b>	<b>Third Violation</b>
Voluntary Reductions	N/A	N/A	N/A
Mandatory Reductions (Stages 2 and 3)	Warning	\$250	Discontinuation of Service
Emergency Reductions	\$250	Discontinuation of Service	Discontinuation of Service
Water Rationing	\$500	Discontinuation of Service	Discontinuation of Service

Drought surcharge rates are effective in Stages 3, 4 and 5.

## VI. Public Comment

Customers will have multiple opportunities to comment on the provisions of the water shortage response plan. First, a draft plan will be available at Town Hall for customers to view. A notice will be included in customer water bill notifying them of such. Also a draft plan will be posted in the Public Works Office.. All subsequent revisions to the draft plan will be published at least 30 days prior to an adoption vote by Stovall's Town Commissioners.

## VII. Variance Protocols

Applications for water use variance requests are available from the Town Public Works Office. All applications must be submitted to the Public Works Office for review by the Public Works Director or his designee. A decision to approve or deny individual variance requests will be determined within two weeks of submittal after careful consideration of the following criteria: impact on water demand, expected duration, alternative source options, social and economic importance, purpose (i.e. necessary use of drinking water) and the prevention of structural damage.

## VIII. Effectiveness

The effectiveness of the Stovall water shortage response plan will be determined by comparing the stated water conservation goals with observed water use reduction data. Other factors to be considered include frequency of plan activation, any problem periods without activation, total number of violation citations, desired reductions attained and evaluation of demand reductions compared to the previous year's seasonal data.

## IX. Revision

The water shortage response plan will be reviewed and revised as needed to adapt to new circumstances affecting water supply and demand, following implementation of emergency restrictions, and at a minimum of every five years in conjunction with the updating of our Local Water Supply Plan. Further, a water shortage response planning work group will review procedures following each emergency or rationing stage to recommend any necessary improvements to the plan to Stovall's Town Commissioners. The Town of Stovall Public Works Director is responsible for initiating all subsequent revisions.

# Warren County

This page has been intentionally left blank.

**Water Shortage Response Plan  
Warren County, North Carolina  
November, 2010**

The procedures herein are written to reduce potable water demand and supplement existing drinking water supplies whenever existing water supply sources are inadequate to meet current demands for potable water.

**I. Authorization**

The Warren County Manager shall enact the following water shortage response provisions whenever the trigger conditions outlined in Section IV are met. In his or her absence, the Public Utility Director will assume this role.

Ms. Linda T. Worth  
Warren County Manager  
Phone: (252) 257-3115  
E-mail: [lworth@co.warren.nc.us](mailto:lworth@co.warren.nc.us)

Macon Robertson  
Warren County Public Utility Director  
Phone: (252) 257-3795  
E-mail: [mrobertson@co.warren.nc.us](mailto:mrobertson@co.warren.nc.us)

**II. Notification**

The following notification methods will be used to inform water system employees and customers of a water shortage declaration: employee e-mail announcements, notices at municipal buildings, notices in water bills. Required water shortage response measures will be communicated through *The Warren Record*, PSA announcements on local radio and cable stations and the County website ([http://www.warrencountync.com/.](http://www.warrencountync.com/)) Declaration of emergency water restrictions or water rationing will be communicated to all customers by telephone.

**III. Levels of Response**

Responses are in the attached Kerr Lake Regional Water System Plan (RWS).

**IV. Triggers**

Warren County is provided water solely by purchase from Kerr Lake RWS. When Kerr Lake RWS declares a water shortage Warren County is required to do so as well. During this time Warren County Utility Director will stay in close contact with Kerr Lake Water System and follow their triggers.

Return to Normal

When water shortage conditions have abated and the situation is returning to normal, water conservation measures employed during each phase should be decreased in reverse order of implementation. Permanent measures directed toward long-term monitoring and conservation should be implemented or continued so that the community will be in a better position to prevent shortages and respond to recurring water shortage conditions.

V. Enforcement

The provisions of the water shortage response plan will be enforced by Warren County personnel and local law enforcement. Violators may be reported on the County’s phone line. Citations are assessed according to the following schedule depending on the number of prior violations and current level of water shortage.

<b>Water Shortage Level</b>	<b>First Violation</b>	<b>Second Violation</b>	<b>Third Violation</b>
Voluntary Reductions	N/A	N/A	N/A
Mandatory Reductions (Stages 2 and 3)	Warning	\$250	Discontinuation of Service
Emergency Reductions	\$250	Discontinuation of Service	Discontinuation of Service
Water Rationing	\$500	Discontinuation of Service	Discontinuation of Service

VI. Public Comment

Customers will have multiple opportunities to comment on the provisions of the water shortage response plan. First, a draft plan will be available at County Offices for customers to view. A notice will be included in customer water bill notifying them of such. All subsequent revisions to the draft plan will be published at least 30 days prior to an adoption vote by Warren County Commissioners.

VII. Variance Protocols

Applications for water use variance requests are available from the County Office. All applications must be submitted to the County Office for review by the County Manager or his or her designee. A decision to approve or deny individual variance requests will be determined within two weeks of submittal after careful consideration of the following criteria: impact on water demand, expected duration, alternative source options, social

and economic importance, purpose (i.e. necessary use of drinking water) and the prevention of structural damage.

#### VIII. Effectiveness

The effectiveness of the Warren County water shortage response plan will be determined by comparing the stated water conservation goals with observed water use reduction data. Other factors to be considered include frequency of plan activation, any problem periods without activation, total number of violation citations, desired reductions attained and evaluation of demand reductions compared to the previous year's seasonal data.

#### IX. Revision

The water shortage response plan will be reviewed and revised as needed to adapt to new circumstances affecting water supply and demand, following implementation of emergency restrictions, and at a minimum of every five years in conjunction with the updating of our Local Water Supply Plan. Further, a water shortage response planning work group will review procedures following each emergency or rationing stage to recommend any necessary improvements to the plan to Warren County's Commissioners. The Warren County Utility Superintendent is responsible for initiating all subsequent revisions.

**KERR LAKE REGIONAL WATER SYSTEM  
HENDERSON, NORTH CAROLINA  
WATER SHORTAGE RESPONSE AGREEMENT**

This is an agreement authorizing the declaration of Water Shortage Conditions, and Establishing Procedures and Measures for the Essential Conservation of Water Resources. Be It Agreed on behalf of the Kerr Lake Regional Water System by the City of Henderson, the City of Oxford and Warren County all of North Carolina.

**SECTION 1. PURPOSE:**

The purpose of this agreement is to provide for the declaration of official phases of water supply shortage situations and the implementation of voluntary and mandatory water conservation measures in the event a shortage or water emergency is declared by the governing body or an appointed representative of the Kerr Lake Regional Water System. These measures would apply to the bulk customers, being the City of Henderson, the City of Oxford and Warren County. It shall be the responsibility of each of these bulk customer to notify its employees and customers.

**SECTION 2. DEFINITIONS:**

- (a) "Any Water," as the term is used in this agreement, shall mean any person using water, including fresh water, wastewater, or reclaimed water.
- (b) "Customer," as the term is used in this agreement, shall mean any person using water for any purpose from the Kerr Lake Regional Water Supply System and for which either a regular charge is made or, in this case of bulk sales, a cash charge is made at the site of delivery.
- (c) "Emergency," as the term is used in this agreement, shall mean that water supplies are below the level necessary, to meet normal needs and that serious shortages exist in the area.
- (d) "Excess Use," as the term is used in this agreement, shall mean the usage of water by a water customer in excess of water allotment provided under the water rationing provisions of this agreement for that customer, over any applicable period.
- (e) "Fresh Water," as the term is used in this agreement, shall mean water withdrawn from surface or groundwater that has not been previously used.
- (f) "Mandatory Conservation," as the term is used in this agreement, shall mean that raw water supplies reservoir levels are consistently below seasonal averages, and if they continue to decline, may not to be adequate to meet normal needs.

(g) "Rationing," as the term is used in this agreement, shall mean procedures established to provide for the equitable distribution of critically-limited water supplies, in order to balance demand and limited available supplies, and to assure that sufficient water is available to preserve public health and safety.

Page 1 of 11 Pages

Water Shortage Response Agreement

Kerr Lake Regional Water System

(h) "Voluntary Conservation," as the term is used in this agreement, shall mean that conditions exist which indicate the potential for serious water supply shortages.

(i) "Waste of Water," as the term is used in this agreement, includes, but is not limited to (1) permitting water to escape down a gutter, ditch, or other surface drain, or (2) failure to repair a controllable leak of water due to defective plumbing.

(j) "Water," as the term is used in this agreement, shall mean water available to the City of Henderson, the City of Oxford and Warren County from the Kerr Lake Regional Water System by virtue of its contract, for introduction into their respective water distribution systems, including water offered for sale.

(k) "Water Use Classes," as the term used in this agreement, shall be established as follows:

CLASS 1 ESSENTIAL WATER USES:

Domestic Use:

- Water necessary to sustain human life and the lives of domestic pets, and to maintain minimum standards of hygiene and sanitation.

Health Care Facilities:

- Fire Hydrants
  1. Firefighting.
  2. Certain testing and drills by the fire department if performed in the interest of public safety and if approved by the municipal governing body.
- Flushing of Sewers and Hydrants: As needed to ensure public health and safety and if approved by the governing body.

CLASS 2 SOCIALLY OR ECONOMICALLY IMPORTANT USES OF WATER:

All Domestic Uses Other Than Those Included in Classes 1 and 3:

- Home water use including kitchen, bathroom and laundry use.
- Minimal watering of vegetable gardens.
- Watering of trees where necessary to preserve them.

Commercial, Agricultural, Industrial and Institutional Uses

- Outdoor commercial watering (public or private) using conservation measures and to the extent that sources of water other than fresh water are not available to use.
- Irrigation for commercial vegetable gardens and fruit orchards or the maintenance of livestock.
- Watering by commercial nurseries at a minimum level necessary to maintain stock.
- Water use by arboretums and public gardens of national, State, or regional significance where necessary to preserve specimens.
- Use of fresh water at minimum rate necessary to implement vegetation following earth moving, where such vegetation is required by law or regulation.
- Watering of golf course greens.
- Filling and Operation of Swimming Pools:
  1. Residential pools which serve more than 25 dwelling units.
  2. Pools used by health care facilities for patient care and rehabilitation.
  3. Municipal pools.
- Commercial car and truck washes.
- Commercial Laundromats.
- Restaurants, clubs, and Eating Places.
- Air Conditioning:
  1. Refilling for start up at the beginning of the cooling season.
  2. Make-up of water during the cooling season.
  3. Refilling specifically approved by health officials and the municipal governing body, where the system has been drained for health protection or repair purposes.
- Schools, Churches, Motels/Hotels and Similar Commercial Establishments.

LASS 3 NON-ESSENTIAL USES OF WATER:

Ornamental Purposes:

- Fountains, reflecting pools, and artificial waterfalls.

Outdoor Non-Commercial Watering (public or private):

- Gardens, lawns, parks, golf course (except greens), playing fields and other recreational areas.
- Filling and operation of recreational swimming pools which serve fewer than 25 dwellings.
- Non-commercial washing of motor vehicles.
- Serving water in restaurants, clubs, or eating places except by specific request.
- Air Conditioning: refilling cooling towers after draining except as specified in Class 1.

**SECTION 3 DECLARATION OF VOLUNTARY CONSERVATION:**

Whenever the governing body of the Kerr Lake Regional Water System, finds the water level in Kerr Lake is nearing elevation 294, it shall declare that Voluntary Conservation conditions exist, and that the Director of the Kerr Lake Regional Water System shall, on a daily basis, monitor the lake level and the water use demand.

In addition, the Kerr Lake Regional Water System shall call upon its bulk customers to employ voluntary water conservation measures within 48 hours of receiving notice (see Addendum) to limit water use (especially Class 3 uses) and eliminate the waste of water. It shall be the responsibility of each of the bulk customers to employ voluntary water conservation measures on their water customers. The goal for water reduction shall be 5%.

Official notice of the voluntary conservation condition shall be given to the City of Henderson, the City of Oxford and Warren County. It shall be the responsibility of each of the three (3) members to employ voluntary water conservation measures on their water customers.

**SECTION 4. DECLARATION OF MANDATORY CONSERVATION:**

Whenever the governing body of the Kerr Lake Regional Water System finds the water level in Kerr Lake is nearing elevation 289, it shall declare that Mandatory Conservation conditions exist. This implies that lake level is nearing a level where insufficient water can enter the raw water intake.

The Kerr Lake Regional Water System shall continue to encourage voluntary water conservation measures for the bulk customers of the Kerr Lake Regional Water System as defined under the Voluntary Conservation declaration, and shall further recommend

require mandatory measures be put in place, such as a ban be imposed on all Class 3 uses for the duration of the shortage. The goal for water reduction shall be 10%. Official notice shall be given to the City of Henderson, the City of Oxford, and Warren County.

**SECTION 5. DECLARATION OF A WATER SHORTAGE EMERGENCY:**

Whenever the governing body of the Kerr Lake Regional Water System finds that water level in Kerr Lake has dropped to elevation 284 or below, and/or that a serious shortage exists due to other reasons it shall declare that a water shortage Emergency exists. It would be the recommendation of the Regional Water System that the City of Henderson, the City of Oxford and Warren County identify all Class 1, Essential Uses, in specific, and make them targets for voluntary conservation initiatives.

The Kerr Lake Regional Water System shall require mandatory measures be put in place, such as a ban be imposed on all Class 2 and Class 3 uses for the duration of the shortage. The goal for water reduction shall be 40%. These restrictions should be continued until the emergency is declared ended.

Official notice shall be given to the City of Henderson, the City of Oxford and Warren County of the emergency situation. It shall be the responsibility of each separate bulk water user, the City of Henderson, the City of Oxford and Warren County, to employ water restrictions on their water customers.

**SECTION 6. DECLARATION OF RATIONING:**

Whenever the governing body of the Kerr Lake Regional Water System finds that water level in Kerr Lake has dropped to elevation 280, declared a Water Shortage Emergency, and finds a need to provide for the equitable distribution of critically-limited water supplies, in order to balance demand on limited available supplies, and to assure that sufficient water is available to preserve public health and safety, it shall call for mandatory rationing by all three (3) of the members and their water users until the emergency is declared ended.

It shall be the responsibility of each of the three (3) members to employ water restrictions on their water customers.

During this emergency situation, the amount of water to each member could be reduced by fifty percent (50%) or more. This amount shall be determined by the governing body of the Kerr Lake Regional Water System. Official notice shall be given to the City of Henderson, City of Oxford and Warren County.

## **SECTION 6A. OBJECTIVES OF RATIONING:**

It is imperative that water customers achieve an immediate further reduction in water use in order to extend existing water supplies and at the same time, assure that sufficient water is available to preserve the public health and sanitation and to provide fire protection service.

Hospitals and health care facilities should comply with all restriction imposed on residential and non-residential water customers as may be applicable to each individual institution, to the extent compliance will not endanger the health of the patients or residents of the institution.

## **SECTION 6B. ENFORCEMENT OF WATER RATIONING**

Each of three (3) members has primary responsibility for monitoring of compliance with the water-rationing measures. There are no enforcement provisions associated with this agreement.

## **SECTION 7. ENFORCEMENT**

In order to effectuate compliance with this plan, enforcement of water conservation restrictions shall be the responsibility of each of the three (3) bulk customers. Each customer shall employ measures not limited to written notices, administrative and civil penalties, and service disruption.

## **SECTION 8. VARIANCE PROTOCOL**

Kerr Lake Regional Water System understands that water restrictions can cause economic hardships on certain portions of their water customers: additionally, the restriction could be infeasible for others that have implemented water use reduction strategies into their daily practices prior to drought conditions being in place. Each of the three (3) bulk customers has the authority to consider variances for those showing proof of economic hardship, public health care facilities, or those that have previously implemented and documented water use reduction strategies such that achieving further water reduction goals may not be achievable. Each of the three (3) bulk customer shall adopt a protocol for accepting and ruling on a variance request. A copy of each variance request and decisions shall be forwarded to the governing body of the Kerr Lake Regional water System for record keeping.

## **SECTION 9. EFFECTIVENESS**

The effectiveness of the Kerr Lake Regional Water System WSRP will be determined by comparing the stated water conservation goals with observed water use reduction data for each of the three (3) bulk customers. Data will be compared against the previous non-water restrictions year's data to determine effectiveness of its actions. Tracking will

be conducted using a spreadsheet, updated monthly, which compares water use against the baseline time period seasonal data. Other factors to be considered include use of a shortage water rate structure, frequency of plan activation, notification procedures, any problem periods without activation, and total number of enforcement actions.

#### **SECTION 10. REVISTION PROTOCOL**

This WSRP will be reviewed and revised as needed to adapt to new circumstances affecting water supply and demand, following implementation of emergency restrictions, and at a minimum of every five years in conjunction with the update in of the Local Water Supply Plans of each of the three (3) bulk customers. Further, the governing body of the Kerr Lake Regional Water System will review procedures following each emergency or rationing stage to recommend any necessary improvements to the plan. Each of the three (3) bulk customers shall also conduct a review of their plan and actions on this cycle and provide comments or suggestions to the Kerr Lake Regional Water System. If revisions are not recommended following a review, a memo will be filed documenting the effectiveness of the WSRP. The governing body of the Kerr Lake Regional Water System is responsible for initiating all subsequent revisions.

#### **SECTION 11. EFFECTIVE DATE**

This agreement shall take effect immediately upon adoption or passage by the governing body of the Kerr Lake Regional Water System.

#### **SECTION 12. EFFECTIVE PERIOD**

# Town of Warrenton

This page has been intentionally left blank.

**Water Shortage Response Plan  
Town of Warrenton, North Carolina  
February, 2011**

The procedures herein are written to reduce potable water demand and supplement existing drinking water supplies whenever existing water supply sources are inadequate to meet current demands for potable water.

**I. Authorization**

The Town of Warrenton Administrator shall enact the following water shortage response provisions whenever the trigger conditions outlined in Section IV are met. In his or her absence, the Public Works Director will assume this role.

Mr. John Freeman  
Town of Warrenton Administrator  
Phone: (252) 257-1122  
E-mail:  
townadministrator@warrenton.nc.gov

William Perkinson  
Town of Warrenton Public Works  
Director  
Phone: (252) 257-1776  
E-mail:  
publicworksdirector@warrenton.nc.gov

**II. Notification**

The following notification methods will be used to inform water system employees and customers of a water shortage declaration: employee e-mail announcements, notices at municipal buildings, notices in water bills. Required water shortage response measures will be communicated through *The Warren Record*, PSA announcements on local radio and cable stations. Declaration of emergency water restrictions or water rationing will be communicated to all customers by telephone or door hangers if necessary.

**III. Levels of Response**

Responses are in the attached Kerr Lake Regional Water System Plan (RWS).

**IV. Triggers**

Town of Warrenton is provided water solely by purchase from Kerr Lake RWS. When Kerr Lake RWS declares a water shortage the town of Warrenton is required to do so as well. During this time Town of Warrenton Public Works Director will stay in close contact with Kerr Lake Water System and follow their triggers.

Return to Normal

When water shortage conditions have abated and the situation is returning to normal, water conservation measures employed during each phase should be decreased in reverse order of implementation. Permanent measures directed toward long-term monitoring and conservation should be implemented or continued so that the community will be in a better position to prevent shortages and respond to recurring water shortage conditions.

V. Enforcement

The provisions of the water shortage response plan will be enforced by Town of Warrenton personnel and local law enforcement. Violators may be reported on the Town’s phone line. Citations are assessed according to the following schedule depending on the number of prior violations and current level of water shortage.

<b>Water Shortage Level</b>	<b>First Violation</b>	<b>Second Violation</b>	<b>Third Violation</b>
Voluntary Reductions	N/A	N/A	N/A
Mandatory Reductions (Stages 2 and 3)	Warning	\$250	Discontinuation of Service
Emergency Reductions	\$250	Discontinuation of Service	Discontinuation of Service
Water Rationing	\$500	Discontinuation of Service	Discontinuation of Service

VI. Public Comment

Customers will have multiple opportunities to comment on the provisions of the water shortage response plan. First, a draft plan will be will be available at Town Hall and on the Town website [www.warrenton.nc.gov](http://www.warrenton.nc.gov) for customers to view. A notice will be included in customer water bill notifying them of such. All subsequent revisions to the draft plan will be published at least 30 days prior to an adoption vote by Town of Warrenton Commissioners.

VII. Variance Protocols

Applications for water use variance requests are available from the Town Hall. All applications must be submitted to the Town Hall for review by the Town Administrator or his or her designee. A decision to approve or deny individual variance requests will be determined within two weeks of submittal after careful consideration of the following criteria: impact on water demand, expected duration, alternative source options, social

and economic importance, purpose (i.e. necessary use of drinking water) and the prevention of structural damage.

### VIII. Effectiveness

The effectiveness of the Town of Warrenton water shortage response plan will be determined by comparing the stated water conservation goals with observed water use reduction data. Other factors to be considered include frequency of plan activation, any problem periods without activation, total number of violation citations, desired reductions attained and evaluation of demand reductions compared to the previous year's seasonal data.

### IX. Revision

The water shortage response plan will be reviewed and revised as needed to adapt to new circumstances affecting water supply and demand, following implementation of emergency restrictions, and at a minimum of every five years in conjunction with the updating of our Local Water Supply Plan. Further, a water shortage response planning work group will review procedures following each emergency or rationing stage to recommend any necessary improvements to the plan to Town of Warrenton's Commissioners. The Town of Warrenton Public Works Director is responsible for initiating all subsequent revisions.

### X. EFFECTIVE DATE

This agreement shall take effect immediately upon adoption or passage by the Warrenton Town Board of Commissioners.

### XI. EFFECTIVE PERIOD

This agreement will remain in effect until terminated by action of the Warrenton Town Board of Commissioners.

Date

---

Walter M. Gardner, Jr., Mayor

Attested By:

Date

---

John Freeman, Town Administrator

**Attachment A Resolution 10-110**

**KERR LAKE REGIONAL WATER SYSTEM  
HENDERSON, NORTH CAROLINA  
WATER SHORTAGE RESPONSE AGREEMENT**

This is an agreement authorizing the declaration of Water Shortage Conditions, and Establishing Procedures and Measures for the Essential Conservation of Water Resources. Be It Agreed on behalf of the Kerr Lake Regional Water System by the City of Henderson, the City of Oxford and Warren County all of North Carolina.

**SECTION 1. PURPOSE:**

The purpose of this agreement is to provide for the declaration of official phases of water supply shortage situations and the implementation of voluntary and mandatory water conservation measures in the event a shortage or water emergency is declared by the governing body or an appointed representative of the Kerr Lake Regional Water System. These measures would apply to the bulk customers, being the City of Henderson, the City of Oxford and Warren County. It shall be the responsibility of each of these bulk customer to notify its employees and customers.

**SECTION 2. DEFINITIONS:**

- (a) "Any Water," as the term is used in this agreement, shall mean any person using water, including fresh water, wastewater, or reclaimed water.
- (b) "Customer," as the term is used in this agreement, shall mean any person using water for any purpose from the Kerr Lake Regional Water Supply System and for which either a regular charge is made or, in this case of bulk sales, a cash charge is made at the site of delivery.
- (c) "Emergency," as the term is used in this agreement, shall mean that water supplies are below the level necessary, to meet normal needs and that serious shortages exist in the area.
- (d) "Excess Use," as the term is used in this agreement, shall mean the usage of water by a water customer in excess of water allotment provided under the water rationing provisions of this agreement for that customer, over any applicable period.
- (e) "Fresh Water," as the term is used in this agreement, shall mean water withdrawn from surface or groundwater that has not been previously used.
- (f) "Mandatory Conservation," as the term is used in this agreement, shall mean that raw water supplies reservoir levels are consistently below seasonal averages, and if they continue to decline, may not to be adequate to meet normal needs.
- (g) "Rationing," as the term is used in this agreement, shall mean procedures established to provide for the equitable distribution of critically-limited water supplies, in order to balance demand and limited available supplies, and to assure that sufficient water is available to preserve public health and safety.

Water Shortage Response Agreement  
Kerr Lake Regional Water System

- (h) “Voluntary Conservation,” as the term is used in this agreement, shall mean that conditions exist which indicate the potential for serious water supply shortages.
- (i) “Waste of Water,” as the term is used in this agreement, includes, but is not limited to (1) permitting water to escape down a gutter, ditch, or other surface drain, or (2) failure to repair a controllable leak of water due to defective plumbing.
- (j) “Water,” as the term is used in this agreement, shall mean water available to the City of Henderson, the City of Oxford and Warren County from the Kerr Lake Regional Water System by virtue of its contract, for introduction into their respective water distribution systems, including water offered for sale.
- (k) “Water Use Classes,” as the term used in this agreement, shall be established as follows:

CLASS 1 ESSENTIAL WATER USES:

Domestic Use:

- Water necessary to sustain human life and the lives of domestic pets, and to maintain minimum standards of hygiene and sanitation.

Health Care Facilities:

- Fire Hydrants
  1. Firefighting.
  2. Certain testing and drills by the fire department if performed in the interest of public safety and if approved by the municipal governing body.
- Flushing of Sewers and Hydrants: As needed to ensure public health and safety and if approved by the governing body.

Water Shortage Response Agreement  
Kerr Lake Regional Water System

CLASS 2 SOCIALLY OR ECONOMICALLY IMPORTANT USES OF WATER:

All Domestic Uses Other Than Those Included in Classes 1 and 3:

- Home water use including kitchen, bathroom and laundry use.
- Minimal watering of vegetable gardens.
- Watering of trees where necessary to preserve them.

Commercial, Agricultural, Industrial and Institutional Uses

- Outdoor commercial watering (public or private) using conservation measures and to the extent that sources of water other than fresh water are not available to use.
- Irrigation for commercial vegetable gardens and fruit orchards or the maintenance of livestock.
- Watering by commercial nurseries at a minimum level necessary to maintain stock.
- Water use by arboretums and public gardens of national, State, or regional significance where necessary to preserve specimens.
- Use of fresh water at minimum rate necessary to implement vegetation following earth moving, where such vegetation is required by law or regulation.
- Watering of golf course greens.
- Filling and Operation of Swimming Pools:
  1. Residential pools which serve more than 25 dwelling units.
  2. Pools used by health care facilities for patient care and rehabilitation.
  3. Municipal pools.
- Commercial car and truck washes.
- Commercial Laundromats.
- Restaurants, clubs, and Eating Places.
- Air Conditioning:
  1. Refilling for start up at the beginning of the cooling season.
  2. Make-up of water during the cooling season.
  3. Refilling specifically approved by health officials and the municipal governing body, where the system has been drained for health protection or repair purposes.
- Schools, Churches, Motels/Hotels and Similar Commercial Establishments.

Water Shortage Response Agreement  
Kerr Lake Regional Water System

**CLASS 3 NON-ESSENTIAL USES OF WATER:**

Ornamental Purposes:

- Fountains, reflecting pools, and artificial waterfalls.

Outdoor Non-Commercial Watering (public or private):

- Gardens, lawns, parks, golf course (except greens), playing fields and other recreational areas.
- Filling and operation of recreational swimming pools which serve fewer than 25 dwellings.
- Non-commercial washing of motor vehicles.
- Serving water in restaurants, clubs, or eating places except by specific request.
- Air Conditioning: refilling cooling towers after draining except as specified in Class 1.

**SECTION 3 DECLARATION OF VOLUNTARY CONSERVATION:**

Whenever the governing body of the Kerr Lake Regional Water System, finds the water level in Kerr Lake is nearing elevation 294, it shall declare that Voluntary Conservation conditions exist, and that the Director of the Kerr Lake Regional Water System shall, on a daily basis, monitor the lake level and the water use demand.

In addition, the Kerr Lake Regional Water System shall call upon its bulk customers to employ voluntary water conservation measures within 48 hours of receiving notice (see Addendum) to limit water use (especially Class 3 uses) and eliminate the waste of water. It shall be the responsibility of each of the bulk customers to employ voluntary water conservation measures on their water customers. The goal for water reduction shall be 5%.

**SECTION 4. DECLARATION OF MANDATORY CONSERVATION:**

Whenever the governing body of the Kerr Lake Regional Water System finds the water level in Kerr Lake is nearing elevation 289, it shall declare that Mandatory Conservation conditions exist. This implies that lake level is nearing a level where insufficient water can enter the raw water intake.

The Kerr Lake Regional Water System shall continue to encourage voluntary water conservation measures for the bulk customers of the Kerr Lake Regional Water System as defined under the Voluntary Conservation declaration, and shall further require mandatory measures be put in place, such as a ban be imposed on all Class 3 uses for the duration of the shortage. The goal for water reduction shall be 10%. Official notice shall be given to the City of Henderson, the City of Oxford, and Warren County.

Water Shortage Response Agreement  
Kerr Lake Regional Water System

**SECTION 5. DECLARATION OF A WATER SHORTAGE EMERGENCY:**

Whenever the governing body of the Kerr Lake Regional Water System finds that water level in Kerr Lake has dropped to elevation 284 or below, and/or that a serious shortage exists due to other reasons it shall declare that a water shortage Emergency exists. It would be the recommendation of the Regional Water System that the City of Henderson, the City of Oxford and Warren County identify all Class 1, Essential Uses, in specific, and make them targets for voluntary conservation initiatives.

The Kerr Lake Regional Water System shall require mandatory measures be put in place, such as a ban be imposed on all Class 2 and Class 3 uses for the duration of the shortage. The goal for water reduction shall be 40%. These restrictions should be continued until the emergency is declared ended.

Official notice shall be given to the City of Henderson, the City of Oxford and Warren County of the emergency situation. It shall be the responsibility of each separate bulk water user, the City of Henderson, the City of Oxford and Warren County, to employ water restrictions on their water customers.

**SECTION 6. DECLARATION OF RATIONING:**

Whenever the governing body of the Kerr Lake Regional Water System finds that water level in Kerr Lake has dropped to elevation 280, declared a Water Shortage Emergency, and finds a need to provide for the equitable distribution of critically-limited water supplies, in order to balance demand on limited available supplies, and to assure that sufficient water is available to preserve public health and safety, it shall call for mandatory rationing by all three (3) of the members and their water users until the emergency is declared ended.

It shall be the responsibility of each of the three (3) members to employ water restrictions on their water customers.

During this emergency situation, the amount of water to each member could be reduced by fifty percent (50%) or more. This amount shall be determined by the governing body of the Kerr Lake Regional Water System. Official notice shall be given to the City of Henderson, City of Oxford and Warren County.

**SECTION 6A. OBJECTIVES OF RATIONING:**

It is imperative that water customers achieve an immediate further reduction in water use in order to extend existing water supplies and at the same time, assure that sufficient water is available to preserve the public health and sanitation and to provide fire protection service.

Hospitals and health care facilities should comply with all restriction imposed on residential and non-residential water customers as may be applicable to each individual institution, to the extent compliance will not endanger the health of the patients or residents of the institution.

Water Shortage Response Agreement  
Kerr Lake Regional Water System

**SECTION 6B. ENFORCEMENT OF WATER RATIONING**

Each of three (3) members has primary responsibility for monitoring of compliance with the water-rationing measures. There are no enforcement provisions associated with this agreement.

**SECTION 7. ENFORCEMENT**

In order to effectuate compliance with this plan, enforcement of water conservation restrictions shall be the responsibility of each of the three (3) bulk customers. Each customer shall employ measures not limited to written notices, administrative and civil penalties, and service disruption.

**SECTION 8. VARIANCE PROTOCOL**

Kerr Lake Regional Water System understands that water restrictions can cause economic hardships on certain portions of their water customers: additionally, the restriction could be infeasible for others that have implemented water use reduction strategies into their daily practices prior to drought conditions being in place. Each of the three (3) bulk customers has the authority to consider variances for those showing proof of economic hardship, public health care facilities, or those that have previously implemented and documented water use reduction strategies such that achieving further water reduction goals may not be achievable. Each of the three (3) bulk customer shall adopt a protocol for accepting and ruling on a variance request. A copy of each variance request and decisions shall be forwarded to the governing body of the Kerr Lake Regional water System for record keeping.

**SECTION 9. EFFECTIVENESS**

The effectiveness of the Kerr Lake Regional Water System WSRP will be determined by comparing the stated water conservation goals with observed water use reduction data for each of the three (3) bulk customers. Data will be compared against the previous non-water restrictions year's data to determine effectiveness of its actions. Tracking will be conducted using a spreadsheet, updated monthly, which compares water use against the baseline time period seasonal data. Other factors to be considered include use of a shortage water rate structure, frequency of plan activation, notification procedures, any problem periods without activation, and total number of enforcement actions.

**SECTION 10. REVISION PROTOCOL**

This WSRP will be reviewed and revised as needed to adapt to new circumstances affecting water supply and demand, following implementation of emergency restrictions, and at a minimum of every five years in conjunction with the update in of the Local Water Supply Plans of each of the three (3) bulk customers. Further, the governing body of the Kerr Lake Regional Water System will review procedures following each emergency or rationing stage to recommend any necessary improvements to the plan. Each of the three (3) bulk customers shall also conduct a review of their plan and actions on this cycle and provide comments or suggestions to the Kerr Lake Regional Water System. If revisions are not recommended following a review, a memo will be filed documenting the effectiveness of the WSRP. The governing body of the Kerr Lake Regional Water System is responsible for initiating all subsequent revisions.

Water Shortage Response Agreement  
Kerr Lake Regional Water System

**SECTION 11. EFFECTIVE DATE**

This agreement shall take effect immediately upon adoption or passage by the governing body of the Kerr Lake Regional Water System.

**SECTION 12. EFFECTIVE PERIOD**

This agreement will remain in effect until terminated by action of the governing body of the Kerr Lake Regional Water System.

**CITY OF HENDERSON**

Date

---

James D. O'Geary, Mayor

**CITY OF OXFORD**

Date

---

Alvin Woodlief, Jr., Mayor

**WARREN COUNTY**

Date

---

Barry Richardson, Chairman

KERR LAKE REGIONAL WATER SYSTEM  
WATER SHORTAGE RESPONSE AGREEMENT

CONSERVATION MEASURES

Direct users to adopt the following conservation measures:

INDOOR RESIDENTIAL USE:

CONSERVATION FOR VOLUNTARY AND MANDATORY CONSERVATION PHASES:

- Use dishwashers only when they are full. Washing dishes by hand (don't let the tap run!) Saves about 25 gallons.
- Adjust water level on clothes washing machines, if possible. Use full load only, if not adjustable.
- Turn off faucets while brushing teeth, etc. Saves about 5 gallons per day.
- Reduce water used per flush by installing toilet tank displacement inserts. A plastic jug may often be used as an alternative. DO NOT USE BRICKS – they disintegrate when soaked and the resulting grit hinders closing of the flap valve.
- Do not use the toilet as a trash can.
- Use sink and tub stoppers to avoid wasting water.
- Keep a bottle of chilled water in the refrigerator for drinking.
- Find and fix leaks in faucets and water-using appliances. Faucets can usually be fixed cheaply and quickly by replacing washers.
- Adapt plumbing with flow restricting or other water-saving devices. These are usually inexpensive and easy to install. See attached list of devices. (Need list.)
- Learn to read your water meter so you can judge how much water you use and what difference conservation makes.
- Take shorter showers and shallow baths. Saves about 25 gallons.
- Reduce the number of toilet flushes per day. Each flush uses about 5 gallons (2-3 if you have water saving toilets).
- Don't use a garbage disposal.
- Use non-phosphate detergent and save laundry water for lawns and plants.

Water Shortage Response Agreement  
Kerr Lake Regional Water System

CONSERVATION FOR EMERGENCY CONSERVATION OR RATIONING PHASE (In addition to measures listed above).

- Turn off shower while soaping up.
- Use disposable eating utensils.

OUTDOOR RESIDENTIAL USE

CONSERVATION FOR NORMAL CONDITIONS AND VOLUNTARY CONSERVATION PHASE:

Lawns:

- Water before 10:00 a.m. to prevent evaporation that occurs during the hottest part of the day. Morning is better than evening, when the dampness encourages growth of fungus.
- Water only when lawn shows signs of wilt. Grass that springs back when stepped on does not need water.
- Water thoroughly, not frequently: long enough to soak roots. A light sprinkling evaporates quickly and encourages shallow root systems. Water slowly to avoid runoff.
- Don't let the sprinkler run any longer than necessary. In an hour, 600 gallons can be wasted.
- Allow maximum of one inch of water per week on your lawn. To measure, place cake tins outside to collect rain and water from sprinklers.
- Use pistol-grip nozzles on hoses to avoid waste when watering flowers and shrubs.
- Aerate lawns by punching holes 6 inches apart. This allows water to reach roots rather than run off surfaces.
- Position sprinklers to water the lawn, not the pavement.
- Avoid watering on windy days when the wind not only blows water off target, but also causes excess evaporation.
- Keep sprinkler heads clean to prevent uneven watering.
- Adjust hose to simulate gentle rain. Sprinklers that produce a fine mist waste water through evaporation.
- Know how to turn off an automatic sprinkler system in case of rain.
- Use an alarm clock or stove timer to remind you to shut off sprinklers that don't have timers.

Water Shortage Response Agreement  
Kerr Lake Regional Water System

Vegetables and Flower Gardens:

- Water deeply, slowly and weekly. Most vegetables require moisture to a depth of 6 to 8 inches.
- Keep soil loose so water can penetrate easily.
- Keep weeds out to reduce competition for water.
- Put the water where you want it and avoid evaporation by using soil-soakers or slow running hoses, not sprinklers.

Trees and Shrubs:

- Water deeply using a soil-soaker or drip-irrigation.
- Water only when needed. Check the depth of soil dryness by digging with a trowel.
- Mulch to reduce evaporation. A 2" to 3" layer of wood chips, pine needles, grass clippings, or straw keeps the soil cool in summer.
- Dig troughs around plants to catch and retain water.
- Water trees growing in full sun more often than those in shade.
- Do not use sprinklers. Apply water directly at base.
- Do not fertilize during the summer. Fertilizing increases a plant's need for water.
- Postpone planting until fall or spring when there is generally less need for water.
- Install trickle-drip irrigation systems close to the roots of your plants. By dripping water slowly, the system doesn't spray water in to the air. Use soil probes for large trees.
- Water when cloudy, at night, or even when a light rain is falling.

OUTDOOR RESIDENTIAL USE CONSERVATION FOR VOLUNTARY CONSERVATION PHASE  
(in addition to measures listed above).

- Do not allow children to play with hose or sprinklers.
- Limit car washing.
- Be ready to catch rainfall that occurs. Place containers under drain sprouts.
- Use leftover household water if available.
- Consider delaying the seeding or sodding of new lawns.
- Determine the amount of water being used outdoors by comparing water bills for summer and winter.

Water Shortage Response Agreement  
Kerr Lake Regional Water System

CONSERVATION FOR MANDATORY CONSERVATION PHASE (In addition to measures listed above).

- Vegetable gardens and food trees should be given minimal amounts of water on an individual basis only.
- Do not water lawns and inedible plants.
- Do not use sprinklers.

*Most outdoor watering is prohibited under Emergency Conservation conditions.*

HOSPITAL AND HEALTH CARE FACILITY USE:

- Reduce laundry usage or services by changing the linens, etc. only when necessary to preserve the health of patients or residents.
- Use disposable food service items.
- Eliminate, postpone, or reduce, as they may be appropriate, elective surgical procedures during the period of emergency.

INDUSTRIAL USE

- Identify and repair all leaky fixtures and water-using equipment. Give special attention to equipment connected directly to waterlines, such as processing machines, steam-using machines, washing machines, water-cooled air conditioners, and furnaces.
- Assure that valves and solenoids that control water flows are shut off completely when the water-using cycle is not engaged.
- Adjust water-using equipment to use the minimum amount of water required to achieve its stated purpose.
- Shorten rinse cycles for laundry machines as much as possible; implement lower water levels wherever possible.
- For processing, cooling, and other uses, either re-use water or use water from sources that would not adversely affect public water supplies.
- Advise employees, students, patients, customers, and other users not to flush toilets after every use. Install toilet tank displacement inserts; place flow restrictors in showerheads and faucets; close down automatic flushes overnight.
- Install automatic flushing valves to use as little water as possible or to cycle at longer intervals.
- Place water-saving posters and literature where employees, students, patients, customers', etc. will have access to them.
- Check meters on a frequent basis to determine consumptive patterns.
- Review usage patterns to see where other savings can be made.